SEPTEMBER 1941

BULLETIN

OF THE NEW YORK ACADEMY OF MEDICINE

SEP 3'41

Original Articles

by

OSWALD S. LOWSLEY

JOHN D. KERNAN

BERNARD L. SHEINTAG

GEORGE Z. MEDALIE

CHAS. GORDON HEYD

SECOND SERIES SEPTEMBER 1941 VOL. 17, NO. 9

BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE

CONTENTS

Surgical and Non-Surgical Treatment of the Prostate Gland 651
Oswald S. Lowsley

Infections of the Mouth, Pharynx and Upper Respiratory Tract 674
John D. Kernan

The Doctor in Court 692
Bernard L. Shientag

The Doctor in Court 697
George Z. Medalie

The Doctor in Court 706
Chas. Gordon Heyd

Library Notes:

An Exhibition of Books on the Discovery of Vaccination, its early Advocates and Opponents 715

Infections; a Three-foot Shelf for the Practitioner 728

Proceedings of Academy Meetings 730

Deaths of Fellows 733

1941 Graduate Fortnight 734

AUTHORS ALONE ARE RESPONSIBLE FOR OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS

Published monthly by THE NEW YORK ACADEMY OF MEDICINE
2 East 103 Street, New York

Entered as second-class matter, February 3, 1928, at the Post Office at New York, N. Y., under the Act of August 24, 1912. Subscription, United States, Canada and Cuba, $3.00; all other countries, $4.00 a year. Single copies, 50c.

OFFICERS AND STAFF OF THE ACADEMY

1941

President

MALCOLM GOODRIDGE

Vice-Presidents

RUFUS I. COLE — I. OGDEN WOODRUFF — HENRY CAVE

Treasurer	*Assistant Treasurer*	*Recording Secretary*
BERNARD SACHS	RODERICK V. GRACE	JAMES RALPH SCOTT

Trustees

GEORGE BAEHR	SHEPARD KRECH	*BERNARD SACHS
ARTHUR F. CHACE	JAMES ALEXANDER MILLER	*JAMES RALPH SCOTT
CARL EGGERS	HAROLD R. MIXSELL	FREDERIC E. SONDERN
*MALCOLM GOODRIDGE	WALTER L. NILES	CHARLES F. TENNEY
	EUGENE H. POOL	

Council

The President — The Vice-Presidents — The Trustees
The Treasurer — The Recording Secretary
The Chairmen of Standing Committees

Director

HERBERT B. WILCOX

Librarian

ARCHIBALD MALLOCH

Executive Secretary	*Executive Secretary*
Public Health Relations Committee	*Committee on Medical Education*
E. H. L. CORWIN	MAHLON ASHFORD

Executive Secretary, Committee on Medical Information

IAGO GALDSTON

Library Consultants

LAURA E. SMITH — B. W. WEINBERGER — ARNOLD C. KLEBS

Legal Counsel

FRANK L. POLK, ESQ.

EDITORIAL BOARD

JEROME P. WEBSTER, *Chairman*

ALFRED E. COHN — ROBERT F. LOEB — PHILIP VAN INGEN
EUGENE F. DUBOIS — ARCHIBALD MALLOCH — KARL VOGEL
MAHLON ASHFORD, *Editor*

---

* Ex-officio

BULLETIN OF
THE NEW YORK ACADEMY
OF MEDICINE

SEPTEMBER 1941

SURGICAL AND NON-SURGICAL TREATMENT OF THE PROSTATE GLAND*

OSWALD S. LOWSLEY

Director of the Department of Urology, James Buchanan Brady Foundation, New York Hospital

INTRODUCTION

One out of every four men over the age of 70 years has some deviation from the normal as regards the anatomical structure of the prostate gland. This fact was established by the author in a series of 250 consecutive autopsies on males at Bellevue Hospital. In addition, the prostate is subject to attack by various organisms in youth and young manhood, adding to the general incidence of prostatic disease. In later years, adenomatous hypertrophy and carcinoma and other malignancies enter the picture. The prostate gland is, therefore, an organ of considerable importance from the pathological standpoint, and must be reckoned with at all ages after puberty—and, indeed, even before puberty because sarcoma of the prostate occurs at any age.

ANATOMICAL AND PHYSIOLOGICAL CONSIDERATIONS

The prostate gland consists of five lobes: two lateral, a middle, an anterior and a posterior. There are two accessory structures: (1) the

* Given January 31, 1941 at The New York Academy of Medicine in the Friday Afternoon Lectures. From the Department of Urology (James Buchanan Brady Foundation) of the New York Hospital.

subcervical group of tubules, occurring under the mucosa at the vesical orifice, and (2) Homes' gland, located in the mucosa of the middle of the trigonum vesicae. The various lobes of the gland send their ducts (averaging 63 in number) to open into the posterior urethra.

In adult life, the prostate is normally about as large as an English walnut. Located at the neck of the bladder, in a particularly strategic position for causing obstruction, even slight disturbances in the prostate assume exaggerated proportions.

The only proved function of the prostate gland is the production of a chemical substance which dilutes the testicular and seminal vesicular secretions and separates and activates the spermatozoa. The formation of an internal secretion has not been proved.

Injuries to the Prostate Gland

The prostate is well protected, but may be injured by external violence with fracture of the symphysis. More common are operative injuries and internal traumatism resulting from instrumentation.

Diseases of the Prostate Gland

PROSTATITIS

Prostatitis is a very common disease. It is usually associated with inflammation of the posterior urethra, seminal vesicles, vesical neck, trigone, or even the epididymes, and should, therefore, be studied in relation to both the urinary and genital tracts.

1. ACUTE PROSTATITIS

Etiology and Bacteriology. The most frequent cause of acute prostatitis is gonococcal infection. Non-specific acute infections are also common and have of late received much study. The organisms most often responsible are the ***Staphylococcus albus*** and ***aureus, Streptococcus pyogenes,*** and colon bacillus, but the ***Bacillus proteus,*** diphtheroid types, or other organisms may be present. Mixed infections are frequent Contributing causes of prostatitis are masturbation over a protracted period, excessive sexual excitation without gratification, excessive sexual intercourse, and coitus interruptus.

Infection may reach the prostate by direct extension from the posterior urethra up the prostatic ducts (the most common way); or it may be descending, and secondary to an acute infection of the kidney or

bladder; or blood-borne, from a primary focus in the sinuses, teeth, or tonsils; or a complication of a systemic infection, such as influenza. A chronic prostatitis may be exacerbated into an acute condition by unwise instrumentation and manipulation in the treatment of chronic posterior urethritis and prostatitis.

Pathology. Three types of acute prostatitis are recognized: (1) acute catarrhal inflammation, which is always present in acute posterior urethritis and is usually caused by direct migration of the organisms up the prostatic tubules; (2) follicular prostatitis, which follows the first type and is characterized by many small abscesses and distention of the tubules with pus, which is not evacuated because of obstruction of the ducts; (3) parenchymatous prostatitis, an intensification of the second stage, the suppurative foci involving a greater extent of the surrounding stroma.

The termination of acute prostatitis is resolution, the formation of a large prostatic abscess, or chronic prostatitis.

Symptoms. The onset of acute prostatitis may be mild, with few or no local symptoms; or it may be very severe. When of urethral origin, the initial symptoms are usually disturbances of urination: urgency, frequency, burning, pain during urination, dribbling. The prostate may enlarge to the point of causing complete retention, requiring catheterization. In acute prostatitis of hematogenous origin, the attack may be ushered in by a chill or fever, and there may or may not be urinary symptoms. Pain may vary from a sense of fulness in the perineum or rectum to acute pain—in the perineum, rectum, loins, penis, or above the pubes. There is leukocytosis.

Diagnosis. Mild prostatitis is likely to escape observation during the course of acute gonorrhea. In severe cases, rectal palpation of a symmetrically enlarged, hot, tender gland is sufficient, with the symptoms and the findings of the two-glass urine test, to establish a diagnosis.

Treatment. Treatment of acute prostatitis is expectant, and consists in absolute rest in bed for all febrile cases; avoidance of physical strain and sexual excitation; avoidance of trauma to the gland; the application of heat in the form of hot sitz baths, hot rectal irrigations, or diathermy; sedatives and belladonna and opium suppositories for pain; alkalinization of the urine, and forced fluids if there is no urinary retention. With acute retention, catheterization may be necessary. Massage of the prostate and urethral instrumentation are contraindicated in the acute stage.

In addition to the above methods for symptomatic relief, chemotherapy has proved of great value in shortening the acute stage of prostatic infections. Sulfanilamide is a most useful drug in combating both gonococcal and non-specific infections. In bacillary infections, mandelic acid, and methenamine and sodium acid phosphate, are valuable.

2. CHRONIC PROSTATITIS

Chronic inflammation of the prostate gland is a very common condition in adult males. In our series of 350 postmortem studies, a large number of the specimens showed evidence of inflammation of the prostate.

The chronically infected prostate is a common focus of infection, and urologists have repeatedly emphasized the importance of examining the gland and its secretion when searching for the source of obscure infectious conditions. We regard the prostate as second only to infected tonsils as a cause of arthritis. It may also be responsible for endocarditis, neuritis, iritis, and myositis.

Etiology and Bacteriology. Chronic prostatitis may result from any cause which congests the gland, such as long-standing infection, sexual abuse, or instrumental or other trauma. Other possible etiological factors are prostatic calculosis, stricture of the urethra, and certain vitamin deficiencies and endocrine dyscrasias.

Chronic prostatitis is most frequently the sequel to an acute infection, which may be caused by either the gonococcus or other organisms. The incidence of acute prostatitis as a complication of gonorrheal urethritis has been variously estimated at from 50 to 90 per cent; and untreated acute gonorrheal prostatitis, or incompletely treated posterior urethritis, is undoubtedly the most important factor in the production of chronic prostatitis. Only immediately after the acute inflammation has subsided is the gonococcus to be found in the prostatic strippings.

Chronic inflammations are by no means always due to the gonococcus, however. Non-specific infection is common, and may be a direct extension from the urethra; or blood-borne from a focus in the tonsils, teeth, or sinuses; or the aftermath of an acute systemic infection. The most common organisms demonstrated are the colon bacillus and the staphylococcus, streptococcus and their subforms.

Pathology. Microscopically, there are usually to be observed regions of inflammatory reaction in and about the acini, characterized by an

increase of the polymorphonuclear cells, lymphocytes, and plasma cells, with marked proliferation of connective tissue. In other cases, the micropathological changes consist in circumscribed areas of round cell or polymorphonuclear cell infiltration. Minute abscesses are sometimes observed.

In a large percentage of cases, cystoscopic examination will show pathological changes in the region of the bladder neck, trigone, or posterior urethra. There is usually more or less involvement of the seminal vesicles, which may be soft and atrophic, or enlarged and indurated.

Symptoms. The signs and symptoms of chronic prostatitis vary greatly. The most frequent complaints are of pain, a urethral discharge, which may be profuse or merely the so-called "morning drop," and some disturbance of sexual function, always accompanied by neurasthenia. The pain may be local or referred. Ordinarily, it is located in the perineum, and may be described by the patient simply as a "heaviness" in the rectum. With this type there is generally a history of the passage of prostatic fluid on defecation. The pain may be referred down the back or inner sides of the legs, or into the groins, penis, or sacrum; or it may simulate that produced by renal or ureteral stone. Frequent and painful urination, urgency, and difficulty are all common complaints, and result largely from involvement of the posterior urethra and bladder neck. If abscess occurs in the course of a chronic prostatitis, which is not uncommon with pyogenic infections, there is increased leukocytosis and pain, chills, and a rise in temperature.

Frequently the predominant symptoms are metastatic, with absence of local symptoms, so that the prostate is not suspected.

Diagnosis. The diagnosis of chronic prostatitis should be based on (1) rectal palpation, (2) repeated analyses of the voided urine, (3) microscopic examination of the prostatic secretion and ejaculate, and (4) urethroscopic examination of the posterior urethra and vesical neck. It is often wise to delay this last procedure until the most distressing symptoms have been allayed by treatment.

Rectal palpation, though of the greatest importance, is not of itself sufficient to establish the diagnosis of chronic prostatitis since, not infrequently, palpation of the chronically inflamed gland may reveal no gross changes, yet pus cells will be found in the prostatic strippings. Many a prostate that feels normal functions poorly and contains large

amounts of pus and debris, and many microörganisms.

Often, however, careful rectal palpation will reveal changes in and about the gland. It will be hard and nodulated, and usually adhesions can be felt extending from its lateral borders to the seminal vesicles and adjacent pelvic tissues. Such a prostate is ordinarily, but not always, enlarged, and sometimes there are boggy spots between the areas of induration. Areas of normal gland are usually present.

Microscopic examination of the prostatic fluid, expressed by massage, is the only reliable method of demonstrating the presence of infection in the gland. Often the diagnosis must rest solely on microscopic evidence of pus in the expressed secretions. In treating a case of chronic prostatitis, frequent microscopic examinations of the unstained prostatic fluid should be made, as the conditions present in the gland can be ascertained in this way much more accurately than by palpation. Negative findings on one examination of prostatic secretion are, however, insufficient proof of the absence of prostatitis, since pus in some instances does not make its appearance until after the prostate has been massaged from two to five times. The secretion expressed from the first massage may be from normal portions of the gland, and two or more manipulations may be necessary to open a pathway into the urethra from a closed-off focus of infection. Massage for diagnostic purposes must, of course, be carried out firmly enough to express the secretions, but very gently and cautiously; otherwise, epididymitis may result. The prostatic fluid should be stained at least once to ascertain the presence or absence of bacteria, and their type. Bacteria are more readily identified on smear than in culture, but many of the more chronic cases fail to show bacteria either on smear or in culture.

To secure uncontaminated prostatic secretion the patient is first asked to void his urine; the penis and meatus are cleansed with green soap and water; and the anterior urethra irrigated with rivanol dextrose, acriflavine, or other antiseptic solution. The patient kneels on the table and a small endoscopic tube is inserted to a point beyond the external sphincter into the prostatic urethra. He then bends over and rests on his hands or elbows. The prostate is massaged firmly but gently and finally the prostatic urethra emptied by vigorous strokes down the middle depression of the prostate. The uncontaminated prostatic fluid is received in a sterile test-tube which the assistant holds at the end of the endoscope.

Normal prostatic fluid is opalescent and viscid, and microscopically is seen to consist of corpora amylacea, lecithin globules, columnar epithelia, and occasional hyaline globules. In chronic prostatitis, the prostatic secretion is less opalescent than the normal fluid, and the normal elements are replaced by pus cells and degenerated epithelial cells. The degree of infection is measured by the amount of pus in relation to the lecithin. In well-developed chronic prostatitis much of the lecithin content will be replaced by pus cells, often in clumps. As the condition improves, the pus cells diminish and the normal elements reappear. Bacteria may be present in great numbers.

Urethroscopic examination of the posterior urethra is advisable in cases where palpation of the prostate and vesicles, analysis of the voided urine, and microscopic examination of the secretions have proved inconclusive. The marked chronic inflammatory changes that may be revealed by such examination not infrequently are the only clue to a low-grade prostatitis and vesiculitis.

Prognosis. The patient suffering from long-standing prostatitis is not easily cured and it is advisable so to inform him at the outset of treatment. Relief of symptoms by some form of therapy, especially urethral dilatation, massage, rectal heat, and chemotherapy, is possible in most cases; but reversion to a normal prostatic fluid is more difficult to obtain and requires complete removal of infectious foci and restitution of prostatic drainage.

Treatment. In general, treatment consists of dilatation of the prostatic urethra, prostatic massage, urethrovesical irrigations and instillations, heat applied in the form of hot rectal irrigations, hot sitz baths, or diathermy, chemotherapy, and hyperpyrexia and vaccine therapy in selected cases.

The elimination of distant foci of infection, in the tonsils, teeth, sinuses, or colon, is of the greatest importance. In these cases, local measures are useful in relieving the symptoms, but are of little value in cure of the prostatitis, which is dependent upon removal of the primary focus.

The main problem in the treatment of chronic prostatitis is the restitution of free drainage, since retention favors infection. The most effective method of restoring the potency of prostatic and ejaculatory ducts is by a gradual, gentle, but thorough *dilatation of the prostatic urethra* to its maximal capacity. Urethral dilatation should precede mas-

sage of the partially or totally retentive gland since massage is beneficial only when drainage can take place through patent ducts. Active instrumentation is permissible in most cases at the time of the first consultation, the only clinical requirement being a clear first glass of urine. Dilatation is best carried out by means of sounds (passed upon a bladder partly filled with a mild antiseptic solution). Dilatation is carried on two or three times a week until the largest possible sound has been passed on at least three occasions and has remained tight, indicating that the maximal capacity of the urethra has been reached. The voided urine should be examined before each instrumentation, and treatment discontinued whenever the urine becomes cloudy. A mild urethritis may develop when the occluded ducts resume drainage and empty their infectious contents into the urethra. It may then be necessary to employ urinary antiseptics: sulfanilamide, mandelic acid, salol, or methenamine with acid sodium phosphate—their selection depending upon the nature of the infecting organism. Clinical proof of improved drainage can be obtained by a comparison of the amount and composition of the secretion before and after dilatation.

When satisfactory drainage of the diseased prostate has been restored, *digital massage* may be given once or twice a week upon a bladder partly filled with antiseptic solution. The aims of prostatic massage are: (1) the gentle expression of the accumulated secretion, (2) a stimulation of the contraction of smooth muscle fibers, and (3) the stretching and final removal of marginal adhesions. The technique, as well as the results obtained, vary widely with different operators. The patient may stand with the body bent forward, as over the back of a chair, or be placed in the Sims' position, or he may rest upon his knees and elbows. The operator, with his gloved index finger in the rectum, exerts gentle pressure upon the lobes palpable from that position, using a downward stroking motion with the force directed toward the urethra, the object being to empty the prostatic acini of their purulent contents and to break up adhesions about the gland. Secretions later may be expressed from the ejaculatory ducts and the sinus pocularis by bringing the firmly pressing finger downward along the posterior urethra. Most patients with chronic prostatitis are benefited by intelligent application of prostatic massage; but too early, too vigorous, too frequent, or unduly prolonged massage may cause acute epididymitis or other unfavorable reactions. The degree of pressure is a matter of experience and is gov-

erned largely by the degree of inflammation present. As a rule, massage is carried out twice a week at first—the treatments tapering off, as the condition improves, until the patient is receiving massage once a week, then every ten days, semi-monthly, and finally once a month.

Hyperpyrexia and vaccines, serums, and injections of foreign proteins have a limited usefulness. *Hyperpyrexia* has been found highly beneficial in certain severe cases of gonorrhea and in the treatment of most gonococcal complications, but it is expensive, very uncomfortable, and attended with considerable risk. We have found *vaccines* very helpful in certain cases of arthritis where the infective focus was in the prostate, but in other cases their use has resulted in no appreciable benefit. *Intraprostatic injections* of antiseptic solutions have been recommended for recalcitrant pyogenic prostatitis; our experience has been that the benefits are not sufficient to offset the hazards of this method.

Chemotherapy has given a new hope in the treatment of chronic prostatitis, with the introduction of the sulfonamides and mandelic acid. Other useful drugs are salol and methenamine used with acid sodium phosphate. When prostatic pain is very severe, sedatives are often necessary. The barbiturates usually suffice, but occasionally it is necessary to give codeine, pantopon, or morphine. When there is pain in the region of the prostate, or during micturition, the patient should be given a soothing prescription, such as Kirwin's mixture:

Potassium citrate	Drams VI (24 cc.)
Tinct. Hyoscyami	Ounces I (30 cc.)
Tinct. Opii camphorata	Ounces I (30 cc.)
Elix. Saw palmetto et Santalwood q.s. ad.	Ounces IV (120 cc.)

Sig:—Drams II (8 cc.) q. 4 hours

Spices and alcohol should be eliminated from the diet and constipation avoided. When there is marked vesical irritation, a restricted diet should be used, which limits meat, tea and coffee, and eliminates certain foods which are irritating to the bladder, such as asparagus, carrots, tomatoes, berries.

The application of heat to the inflamed prostate has definite therapeutic value. Relief may often be obtained by hot sitz baths, hot rectal irrigations, diathermy, or radiothermy. The Elliott treatment regulator, introduced through the rectum, is an effective method of applying dry heat directly to the prostate and adjacent structures.

Occasionally a prostate becomes so infected that no amount of treatment by these methods will effect a cure. Total prostatectomy is then indicated.

PROSTATIC ABSCESS

Etiology. Abscess of the prostate gland may follow failure of an acute diffuse parenchymatous prostatitis to subside or to become chronic. Multiple small abscesses in the stroma coalesce to form one large abscess. A frequent cause is the gonococcus, but our own studies have shown that many other organisms may be present in abscess cavities in the prostate. Prostatic abscess may result from improper instrumentation; or occur as a complication of systemic infection; or be secondary to superficial pyogenic infections, such as carbuncles, boils, and felons. In the last event, the causative organism is the *Staphylococcus aureus.*

Symptoms and Diagnosis. The symptoms are pain in the perineum, chills, fever, and frequent and painful urination which may progress to complete retention. Leukocytosis is present. Chronic abscess may persist for weeks without producing local symptoms. There are occasional cases of huge prostatic abscesses in which the only symptom is difficulty of urination; this is due to the type and lack of toxicity of the infecting organism.

The diagnosis usually is not difficult. By rectum, the prostate is felt to be enlarged, hot, tender, and often asymmetrical. The presence of fluctuation is conclusive. If no fluctuation is detected, a needle may be inserted into the suspected area and pus withdrawn, if present. If neither fluctuation nor pus is noted, a cysto-urethrogram may be helpful.

Prognosis and Treatment. An untreated prostatic abscess may rupture into the urethra or rectum, or burrow into the perineum, bladder, or even the peritoneum, with dire results. Abscesses which empty their entire contents into the urethra are likely to be of the follicular type, or at least not deeply seated in the parenchyma. Spontaneous evacuation through the rectal wall is a surgical calamity.

If proper drainage is instituted, convalescence is usually satisfactory, although every case must be followed by a period of observation and treatment to insure a normal gland.

Evacuation of a prostatic abscess *through the posterior urethra* is the method of choice. A perineal section is done, the finger introduced into the prostatic urethra, and the honey-combed interior cleaned out

so that no pockets remain. A tube is then introduced into the bladder, diverting the urine and conducting the pus out through the perineal wound.

Evacuation may also be accomplished *from outside the urethra.* The posterior surface of the prostate is exposed as in a Young perineal prostatectomy, the abscess incised, and a tube inserted into it and fixed in position. The transvesical route is occasionally employed, but our own experience with it has not been encouraging.

SYPHILIS OF THE PROSTATE GLAND

Syphilis of the prostate appears to be exceedingly rare. We have personally never encountered a case, and very few have been reported in the literature.

Symptoms and Diagnosis. There is nothing pathognomonic either in the symptoms or the rectal findings. The chief symptom is perineal pain, usually aggravated by urination. Less common are hematuria, pain on defecation or coitus, urinary disturbances, and retention. Prostatic massage usually produces a more or less characteristic discharge. On rectal palpation the prostate will be found markedly irregular, enlarged, and sometimes nodular. The Wassermann test is usually positive.

Prostatic syphilis is a late manifestation of lues, and occurs, usually, between the ages of 40 and 65 years, when it may be very difficult to differentiate it from hypertrophy of the prostate and carcinoma.

Prognosis and Treatment. If diagnosed early, the disease responds readily to antiluetic treatment; if unrecognized, the prostate may be destroyed by gummas.

Treatment consists of the usual antiluetic measures, reinforced by surgical drainage of necrotic gummas.

TUBERCULOSIS OF THE PROSTATE GLAND

Etiology and Incidence. Tuberculosis of the prostate is a disease of the young adult and, as a rule, is observed in those in the third and fourth decades of life. It is almost always a secondary involvement in a progressive tuberculosis which is extending throughout the urogenital system. In most instances it is probably an extension from the seminal vesicles. Between 50 and 70 per cent of all cases of tuberculosis of the male genital tract show involvement of the prostate.

Pathology. At first the prostatic lesion may be confined to the region

about the ejaculatory duct on the side corresponding to the infected vesicle, whence it spreads, by way of the acini or the lymphatics, to other parts of the gland. In the rare cases in which the prostate is infected by tubercle bacilli conveyed in the urine, the initial lesion is periurethral.

The first pathological change is the formation of tubercles. The tubercle bacilli are apparently first deposited in the walls of the small capillaries. Other tubercles develop from these original foci and extend in the usual manner. Later stages are fibrosis, caseation, and suppuration. Suppuration may result in rupture of an abscess through the prostatic capsule, with the formation of an intractable perineal fistula; or there may be rupture into the urethra. Spontaneous healing is rare. Small caseous areas may become encapsulated and latent, or they may undergo calcification and encapsulation.

Symptoms and Diagnosis. With well-walled-off tubercles, there may be no untoward symptoms whatsoever. If the tubercles have coalesced and finally ruptured into the urethra, there will be frequency, dysuria, hematuria, and pyuria.

Rectal examination reveals a nodular, elastic gland, usually affected on one side only, and differing from a carcinomatous condition in that it lacks the board-like consistency usually associated with the latter. The secretion may show tubercle bacilli. Differential diagnosis is based chiefly on microscopic study of a specimen of diseased tissue.

Treatment. The hygienic, dietary, and therapeutic measures advocated for postoperative and inoperable tuberculosis of the urogenital tract are usually prescribed, and good results have been obtained by us therefrom in some cases. When calcium deposits are present, total prostatectomy is indicated. On the other hand, in acute and subacute tuberculosis of the prostate, operation is distinctly contraindicated. Even in the presence of abscess, it is preferable to allow it to absorb or rupture into the urethra rather than to evacuate it through the perineum, as this is likely to result in a persistent fistula. Radical removal of the genital tract is inadvisable in patients with extensive involvement of the prostate gland.

CYSTS OF THE PROSTATE GLAND

Cysts of the prostate gland are decidedly rare. They may be either congenital or acquired. The most common is the simple retention cyst,

which may arise in any portion of the gland and is merely a normal acinus the duct of which has become occluded, causing expansion of the acinus.

Treatment. Smaller retention cysts, producing no symptoms, are best left alone. When treatment is necessary, destruction of the cyst by fulguration, or removal by prostatic resection instruments, is the treatment of choice.

PROSTATIC CALCULUS

Incidence and Etiology. Prostatic calculi are relatively common. In an autopsical study of 250 prostates from subjects of all ages, I found one or more stones in approximately one-fifth of the glands.

Prostatic calculosis may occur at any period of life, but is rare before the age of 30 years. Of the twenty-three patients reported on by Lowsley and Hawes, only one was under 40 years of age.

Distinction must be made between (1) endogenous, or true prostatic calculi, namely, concretions formed within the prostatic substance, and (2) exogenous, or false calculi, which are urinary stones that have lodged in the prostatic urethra or have formed primarily from urinary sediments in a communicating pouch. The nucleus of a true prostatic stone is composed of organic material of an albuminoid nature: corpora amylacea, a blood clot, epithelial detritus, a clump of bacteria, or necrotic tissue from an abscess. The inorganic element forming the laminated layers about the nucleus is composed of inorganic salts.

The exact etiology of true prostatic stones is unknown. The most commonly held theory is that first advanced by Thompson in 1868, namely, that they have their origin in corpora amylacea, which, under certain conditions, act as foreign bodies and set up an inflammatory reaction in the mucous membrane of the acini enclosing them, as a result of which calcium phosphates and carbonates are cast off; these impregnate the corpora amylacea and convert them into calculi.

Pathology. True prostatic calculi are usually multiple, small, rounded (without facets), and scattered indiscriminately throughout the parenchyma. Occasionally a cluster of stones will be found in one lobe while the remaining lobes are free of calculi. Sometimes there will be a single large stone, or one large stone in association with numerous smaller ones.

Microscopically, the portion of the gland containing the calculi

shows distended acini, the mucosal linings of which are infiltrated by lymphocytes or by polymorphonuclear leukocytes.

Benign adenomatous hypertrophy and prostatic calculosis not infrequently occur together (18 of 23 cases, Lowsley and Hawes). The calculi are seldom, if ever, located within the adenoma, but are found between it and the capsule, embedded in the remnants of the true prostate. Frequently, however, calculi-containing prostates show no sign of hypertrophy. They may be senile and fibrotic, with atrophy of the parenchyma and evidence of inflammation.

Symptoms and Diagnosis. The most important symptoms are disturbances of urination, the actual passage of calculi either spontaneously or following massage, and localized or referred pain—in the perineum, suprapubic region, rectum, or down the penile shaft. In many cases the symptoms are overshadowed by those of an associated hypertrophy or prostatitis. In others, no symptoms are present, and the stones are discovered accidentally.

It is frequently possible to make a presumptive diagnosis of prostatic calculi by the rectal palpation of a hard, circumscribed area suggestive of stone or a nodule, or by the eliciting of crepitation. Urethroscopic examination may reveal the presence of stones in the prostatic ducts. Positive diagnosis is made by roentgenography. Cysto-urethrograms are of value not only in revealing the calculi, but in determining the type and degree of obstruction to urination, and associated pathology, if present.

Treatment. Small calculi, that are discovered accidentally and give no subjective symptoms, are best left alone. In older men, who have neared the end of sexual life, we prefer to treat prostatic calculosis by total prostatectomy, both when there is associated adenomatous hypertrophy and when there is no hypertrophy but infection and fibrosis are present. Prostatotomy, transurethral resection, and even the usual conservative perineal or suprapubic prostatectomy often leave enough calculi or infected prostate to cause persistence or recurrence of symptoms, as has been repeatedly demonstrated by postoperative roentgenograms. Younger men with numerous stones in their prostates should be treated by prostatectomy as a rule. Transurethral resection is also frequently employed, but has the disadvantage that stones are often left behind in the prostate.

SARCOMA OF THE PROSTATE

Sarcoma of the prostate is relatively rare, and may occur at any age. A review of the literature by Lowsley and Kimball, in 1934, disclosed only 132 reported cases, 35 of which occurred in patients under 22 years of age. These tumors usually grow rapidly and attain large size, early infiltrating the bladder, seminal vesicles, and rectum. Growth of the tumor backward beneath the base of the bladder pushes the latter upward and forward, causing obstruction of the ureteral orifices, urethral orifice, and urethra, with resultant partial or complete retention. Growth of the tumor toward the perineum causes prolapse of the rectum, with obstruction to defecation and urination.

Diagnosis. Early diagnosis is essential. In early cases rectal examination may be negative, but usually reveals a palpable nodule. Occasionally the growth may be indurated and nodular, but usually it is of uniform consistency and has an elastic "balloon-like" feel; hence the condition may be erroneously diagnosed as abscess. The diagnosis can positively be made by needle biopsy.

Prognosis and Treatment. The prognosis is poor. The most favorable results have been achieved through the use of radium and Roentgen rays. In early cases, the skilled use of these agents may prove curative, and in late cases they may give relief and prolong life. Operative intervention should be limited to the relief of obstruction and the treatment of complications.

CARCINOMA OF THE PROSTATE GLAND

Carcinoma of the prostate, because of its frequency and its essentially fatal nature, presents the urologist with his most baffling problem. Young's statistics (1935) reveal that a fifth of the male patients who seek relief of obstruction of the vesical neck have carcinoma of the prostate.

Pathology. A striking morphologic peculiarity of carcinoma of the prostate gland, that has been emphasized by most authors, is the diversity of its forms. In the same case, in different portions, the carcinomatous proliferation may be found at one time as an adenocarcinoma and again as a scirrhous, a medullary, or a squamous-cell carcinoma.

A large percentage of prostatic carcinomas are associated with benign hypertrophy. In only 10 (13 per cent) of the 72 cases studied by Wilson and McGrath was there no evidence of associated hypertrophy.

CHART I

INCIDENCE, BY AGE-GROUPS, OF CARCINOMA IN RELATION TO BENIGN ENLARGEMENT IN 280 CASES

Age of group	Prostates examined	Per cent showing carcinoma	Per cent showing benign enlargement	Per cent of carcinomas which arose in a prostate with benign enlargement	Per cent of benign enlargement which also showed carcinoma
31-40	28	0%	4% (1)	0%	0%
41-50	23	17% (4)	30% (7)	25%	14%
51-60	65	14% (9)	37% (24)	50%	21%
61-70	77	23% (18)	67% (52)	66%	23%
71-80	63	21% (13)	68% (43)	46%	14%
81-90	24	29% (7)	75% (18)	71%	27%

In his very complete study of 280 prostates from men between the ages of 31 and 90 years, Robert A. Moore found the occurrence of carcinoma and benign enlargement to be as shown in Chart I. It is evident, therefore, that the possibility of carcinoma must be kept in mind in every case of prostatic hypertrophy.

Numerous careful studies show that in over 75 per cent of cases the carcinoma starts in the posterior lobe (the portion of the gland which does not participate in benign adenomatous hypertrophy).

Prostatic carcinoma is, as a rule, insidious and slow-growing, though highly malignant, and may remain confined to the prostate and periprostatic region for long periods. Only 10 to 20 per cent, according to Barringer, are radiosensitive.

In many cases, by the time the growth has become sufficiently advanced to be clinically diagnosed, it has extended beyond the posterior lobe into the lateral and median lobes and upward to the base of the prostate. There it may penetrate the capsule and involve the seminal vesicles. Through the prostate's rich supply of lymphatics, the carcinoma may extend to the pelvic nodes, or, by the perirectal plexus, to the abdominal nodes. Dissemination through the blood stream may occur early, and distant metastases, particularly in the bones, are often detected before the occurrence of local symptoms. The small prostatic tumor often disseminates widely. The high frequency of skeletal metastases, and the predilection for the pelvis and lumbar vertebrae, have been noted by practically all observers.

Symptoms. The symptoms are not characteristic. Disturbances of urination are usually the first symptoms, but advanced carcinoma may

be present without urinary symptoms. Pain—referred to the sacroiliac region, rectum, perineum, or suprapubic area—is often an early symptom, and may be due to metastases to the bones. Terminal hematuria, retention, loss of weight and strength, and constipation are significant, but late, symptoms.

Diagnosis. Carcinoma of the prostate has, unfortunately, usually existed for a long period by the time it is recognized. The diagnosis is based upon the findings of rectal palpation and microscopic examination of a biopsy specimen removed by means of an instrument, such as the Lowsley biopsy instrument. In well-advanced cases recognition is usually not difficult; but in early cases, in the soft (medullary) type of carcinoma, and in carcinoma superimposed upon a benign hypertrophy, diagnosis may be difficult. A single, small nodule may easily escape notice, especially when masked by edematous prostatic tissue or in the absence of symptoms. The entire gland may be irregularly enlarged, of a board-like hardness, and fixed; but usually the growth is in the form of a nodule or hardened area in the posterior lobe, where it is readily palpable by rectum. Evidence of the fixed gland may be seen on cystourethroscopic examination.

Prognosis and Treatment. The prognosis in the past has been cheerless in the extreme. Over 95 per cent of the cases are beyond cure when first seen. The high early incidence of pelvic lymphadenopathy, capsular infiltration and invasion of the contiguous structures, and skeletal metastases precludes the successful surgical treatment of the disease in most cases.

In cases in which the carcinoma is confined to the prostate and periprostatic region, total or subtotal perineal prostatectomy yields a fair percentage of cures estimated upon a 3 to 5 years' basis, and prolongations of life for considerably longer periods are not uncommon. If seen too late for hope of radical removal, partial perineal prostatectomy, or transurethral resection of the obstruction, with implantation of radon seeds, is the method of choice.

Improvement in prognosis is dependent on an increase in the number of early diagnoses, with radical removal.

BENIGN HYPERTROPHY OF THE PROSTATE

Benign hypertrophy of the prostate gland occurs in from one-third to one-fifth of all men over 50 years of age.

Etiology. Many theories have been advanced as to why the prostate tends to hypertrophy with age. The chief are: (1) that the hypertrophy is due to true tumor formation, which takes its origin, according to some, from the periurethral accessory glands, or, according to others, from any part of the prostate gland proper; (2) that it is a fibroepithelial growth akin to myoma of the uterus; (3) that the condition is a cystic glandular hyperplasia having its basis in infection of long standing; (4) that the hyperplasia is endocrinopathic, and due to an improper balance between the male and female hormones.

Pathology. Benign hypertrophy of the prostate most frequently occurs in the middle and lateral lobes—the anterior lobe being affected rarely, and the posterior lobe practically never. My studies show that the portion which enlarges most frequently is really a contiguous structure—the subcervical group of tubules. These may enlarge without hypertrophy of the prostate; but when the prostate proper is enlarged, the subcervical group will also be hypertrophied. If a portion of the gland protrudes into the bladder, it will usually be found to be the subcervical group of tubules.

Microscopically, four types of benign enlargement may be distinguished: glandular, cystic, fibroglandular, and fibrous. The much-discussed question as to whether adenomas or fibromyomas predominate in prostatic hypertrophy is of little practical importance as it is established that a pure formation of either type never occurs.

In prostatic hypertrophy there is a definite line of cleavage between the capsule and the prostatic tissue, making separation of the adenomatous prostate from the capsule an easy matter.

Symptoms. Enlargement of the prostate is usually an insidious disease, which develops slowly and is marked by gradually increasing frequency and nocturia. The patient notices that the character of the stream changes: it is often slow in starting, and lacks force. Men take this as evidence of advancing age and often pay little attention to it. The condition gradually gets worse, and is usually accompanied by urinary infection. Often microscopic blood is present, and occasionally macroscopic hematuria. In the rare case, complete obstruction of urination may occur without any premonitory symptoms.

The urine usually contains pus, blood, and albumin. If the disease is of long standing, casts are found, and the phenolsulphonphthalein test will show diminished renal function. The blood urea is increased, some-

times very greatly; but unless there is fever, the blood count is usually within normal limits.

Diagnosis. The patient should be given a careful general and special examination, including rectal palpation, an estimation of the amount of residual urine, determination of the renal function, and a cystoscopic examination to ascertain the exact nature of the enlargement. The size of the prostate as felt by rectum has nothing to do with its obstructiveness, and cystoscopy, or cysto-urethrography, is essential to determine the extent of the intravesical and intraurethral intrusion.

Treatment. Many patients with benign hypertrophy of the prostate have no obstructive symptoms and do not require surgery. In benign hypertrophy without residual urine, *palliative treatment* is usually advisable; this consists of periodic prostatic massage, urethral dilatations, urethrovesical irrigations, the application of heat to the prostate, and hydrotherapy. Periodic check-up is essential.

Hormonal therapy affords symptomatic relief in some early cases of prostatism with slight or moderate urinary disturbances; but even its most enthusiastic advocates do not claim that it benefits all types of cases, or that it is to be considered a substitute for surgical relief in major prostatic obstruction.

Roentgen therapy of benign hypertrophy also is an accepted procedure, but opinions vary as to the effect of such treatment. The more conservative urologists and radiotherapists incline to the opinion that the only effects of irradiation are a definite alleviation of the associated congestion and edema, giving temporary relief in selected cases. It cannot, however, be regarded as a substitute for prostatectomy or resection.

Surgical treatment is usually required in cases with residual urine. Every patient presents an individual problem, and the type of operation selected should be the one best suited to the case in question. It has always been our contention that every well-trained urological surgeon should be psychologically and technically equipped to perform any operation in urology. To that end, we train our young men in the proper technique of perineal, suprapubic, and transurethral prostatectomy. Each of these has its place in urological surgery. By limiting his surgery to one of these methods only, the operator limits his usefulness to his patients.

Widespread interest has been manifested in the past two decades, by both the medical profession and the laity, in transurethral resection of

the prostate. In 1913, Hugh Young developed a method of transurethral surgery for certain types of enlargement of the subcervical group of tubules. This operation, called the Young punch operation, did more efficiently and less dangerously what the Italian Bottini operation (performed through an external urethrotomy wound) was designed to do. Young's operation was modified and improved, in 1920, by the late John Caulk, of St. Louis, who added a cauterizing element. In 1926, at The New York Academy of Medicine, Maximilian Stern presented a resection instrument made for him by the late Rheinold Wappler. This instrument was too small to be entirely effective, but it was soon improved by Bumpus, Collings, McCarthy, Foley, Kirwin, and others.

A tremendous wave of enthusiasm swept this country and extended abroad, and for a time claims were made to the effect that open surgery upon the prostate gland was doomed to oblivion. As the fanaticism subsided, there also died down the extravagant claims that transurethral surgery was an office procedure, and that any prostate of any size could be removed without the preliminary preparation of the patient which had reduced the mortality of the open operation from nearly 50 per cent to about 6 per cent. It soon became evident that this surgical maneuver was not as simple as it had at first seemed. One great harm done by its too ardent protagonists was that their claims gave every doctor who could manipulate a cystoscope the idea that he could perform the transurethral operation. Such, of course, was not the case, and the mortality of these amateur surgeons was tremendous.

Transurethral resection has a permanent and highly important place in surgery of the vesical neck, and with the passage of time its scope and limitations are being better defined. It is true that the method has a slightly geographic aspect; most of those who believe in transurethral prostatectomy to the exclusion of the open operation, it has been noted, live in the Midwest.

Before deciding which operation to perform in a given case, one must determine the type of enlargement present. In general, it is our practice to remove by means of *transurethral resection* all enlargements of the middle lobe and of the subcervical group of tubules, all fibrous bars, and certain obstructions due to malignancy of the prostate. We prefer to use the Kirwin rotary resectoscope as a rule.

If the enlargement of the gland is mainly intravesical, *suprapubic prostatectomy* is the method of choice. The operation employed is the

so-called Fuller-Freyer technique. In this procedure, the capsule over the most prominently presenting part of the gland is incised, and from this point the enucleation is accomplished. Care is taken not to split the anterior commissure as by so doing one often tears into the plexus of Santorini on the anterior surface of the prostate, greatly increasing the bleeding.

In all other cases, *perineal prostatectomy* is done. This includes enlargements which encroach on the posterior urethra. Prostatectomy for the removal of a malignant gland, or for long-standing chronic inflammation, is also accomplished through the perineum. A recent modification of the usual perineal prostatectomy, by the author, has reduced postoperative incontinence of urine to a minimum. This consists in plicating the membranous urethra just external to the apex of the prostate by the insertion of a mattress suture of ribbon gut.

Recently, patients suffering from enlargement of the prostate, who have passed the period of sexual activity, have been operated upon by means of a *subtotal prostatectomy*, which is accomplished as follows: The prostate gland is exposed by the perineal route in the usual manner. The lateral surfaces of the gland are exposed, which is usually easily accomplished as there are seldom any adhesions from these aspects of the organ. The apex is then cut across and the entire gland and capsule excised except for a small strip of the anterior commissure. The seminal vesicles and ampullae of the vasa deferentia are cut across. The neck of the bladder is brought in contact with the membranous urethra by means of a mattress suture which not only approximates these structures and plicates the urethra, but stops all bleeding as well, thus doing away with the necessity of packing.

Our results with this modified perineal operation are so good that we perform it by choice unless the patient is still active sexually. In the latter case, it is unwise to do this procedure as the seminal vesicles and ampullae of the vasa deferentia are cut across, and ejaculation is impossible.

Preliminary preparation of the patient is of the greatest importance irrespective of the type of operation selected. This consists primarily of properly managed drainage, which is accomplished either by (1) a suprapubic cystostomy, with suction drainage, or (2) an indwelling urethral catheter.

Complications in prostatectomy by any of the three techniques men-

Chart II

OPERATIONS FOR BENIGN AND MALIGNANT HYPERTROPHY OF THE PROSTATE GLAND

Dec. 10, 1920—Jan. 1, 1941

	Age Groups					*Hospitalization*			*Results*				
	-50	51-60	61-70	71-80	80-	Short-est	Long-est	Aver-age	Cured or imp.	Un-changed	Died	Mort. Rate	Total Cases
PERINEAL PROSTATECTOMY													
Benign prostates	21	197	309	128	17	1	148	24	617		55	8.1%	672
Malignant prostates	2	20	46	22	4	4	106	27	81		13	13.8%	94
SUBTOTAL AND TOTAL PERINEAL PROSTATECTOMY													
Benign prostates	2	18	16	8		2	60	25	42		2	4.5%	44
Malignant prostates	2	4	14	1		5	125	31	18		3	14.2%	21
SUPRAPUBIC PROSTATECTOMY													
Benign prostates	4	35	74	25	4	1	90	25	128		14	9.8%	142
Malignant prostates		1	1	3	1	4	17	20	4		2	33.3%	6
TRANSURETHRAL RESECTION													
Benign prostates	92	174	189	88	11	1	77	10	523	9	22	3.9%	554
Malignant prostates	6	11	20	17	1	1	165	17	48	1	6	10.9%	55
YOUNG PUNCH OPERATION													
Benign prostates	18	18	16	3		1	58	7	52		3	5.4%	55
KIRWIN SHRINKAGE OPERATION													
Benign prostates	3	2	3	2	1	2	38	12	7	4	0	0.	11
TOTALS	150	480	688	297	39				1520	14	120	7.2%	1654

		Total Cases	*Died*	*Mort. Rate*
SUMMARY:	Benign	1478	96	6.49%
	Malignant	176	24	13.63%
	Total	1654	120	7.25%

tioned are approximately the same. The mortality rate is lower in transurethral prostatectomy than in the suprapubic and perineal procedures because the large majority of these operations are done on much younger men.

Chart II shows the results of these various procedures, in both benign and malignant enlargements, in the Department of Urology (James Buchanan Brady Foundation) of the New York Hospital.

Summary

Attention is called to the effect of disease of the prostate gland in the young as well as the old.

Young men are liable to acute and chronic inflammation of the prostate, sometimes producing abscess, requiring surgery, but more often causing low back pain, urinary disturbances, and sexual disturbances. Non-surgical treatment is indicated in the latter; this consists of massage, urethral dilatation, urethrovesical irrigations, chemotherapy, hydrotherapy, diathermy, and other forms of physiotherapy. Tuberculosis of the prostate occurs fairly frequently in young men, and is usually part of a progressive urogenital tuberculosis. Treatment, as a rule, is non-surgical. Sarcoma of the prostate, a rare disease that is almost invariably fatal, affects young men and even children relatively often.

Appropriate diet and medication are indicated in all prostatic conditions.

Older men are subject to prostatic calculosis, and all forms of obstructive prostatism, both benign and malignant. Appropriate surgical methods must be applied after careful investigation has revealed the exact conditions that prevail.

In less than 5 per cent of cases of carcinoma of the prostate gland is the malignancy discovered in time to effect a cure by total extirpation. This is because there are no symptoms in early stages of the disease. It is therefore an important duty of the general practitioner and the family doctor to do a rectal examination on every male patient over 50 years of age, and to investigate thoroughly every case in which the prostate is not perfectly normal.

INFECTIONS OF THE MOUTH, PHARYNX AND UPPER RESPIRATORY TRACT*

JOHN D. KERNAN

Professor of Otolaryngology, College of Physicians and Surgeons, Columbia University

ACUTE PYOGENIC INFECTION OF THE TONGUE

However important the tongue may be in its other relations to life and surgery, as the site of acute pyogenic infections it plays no great role. Only thirty cases of abscess of the tongue were reported in American and foreign literature in the 10 years between 1920 and 1930. In the last 10 years there have been only ten cases treated at the Presbyterian Hospital and Babies Hospital.

Various reasons are given for this immunity of the tongue. The covering epithelial layer is peculiarly thick and resistant. Surface infections do not enter easily. The blood supply of the tongue is very great, so that threatening bacteria are promptly attacked and destroyed. The structure of the tongue, almost solidly muscle, lacking connective tissue, gives pus no chance to spread. All these circumstances make tongue abscess rare.

Nevertheless, occasional cases do occur. Most of the cases start, not primarily from surface wounds of the tongue, but secondarily from acute infections of the tonsils. The usual history is that, several days after subsidence of an acute sore throat, pain begins in one side of the tongue. This increases gradually in severity, accompanied by swelling which may become so great as to interfere with breathing and swallowing. The usual constitutional symptoms of acute infections are present in varying degree. No one infecting organism is found exclusively. Streptococci are likely to predominate in the early abscesses, but later a mixture of many organisms will be found, with very foul pus being produced. As a rule the infection is limited to one side of the tongue, not penetrating the median raphe. When situated in the forward part, interference with breathing is caused by blocking of the

* Presented October 21, 1940 at the Graduate Fortnight of The New York Academy of Medicine.

mouth and the crowding upward of the soft palate into the nasopharynx. If, however, the abscess is situated at the base, even though the swelling of the tongue may not be great, an accompanying edema of the larynx may threaten asphyxia.

The treatment in the early stages consists of hot irrigations and the use of antiseptic mouth washes. It must be remembered that there is great difficulty in swallowing in these cases, so it will be necessary to combat dehydration and starvation. Later, surgical interference will be called for. The abscesses well forward in the body of the tongue present no difficulty. A large incision and the placing of an adequate drain results in prompt relief. The abscesses at the base of the tongue are very difficult to reach for the placing of an incision. The swelling of the tongue makes both the use of a laryngeal mirror and a direct laryngeal speculum difficult. I have had experience with two lingual abscesses. One was situated in the body of the tongue, well forward on the right side. No difficulty was had in draining it. The other was at the base of the tongue, seemingly having started as an acute lingual tonsillitis. There was early edema of the larynx which called for scarification through the direct speculum. This abscess itself gave much more difficulty. The pain was great and swallowing was almost impossible. Only such a sloping surface could be exposed that an incision with a straight laryngeal knife through a direct speculum could not be made. It was thought at one time that an external submental incision, dissecting through the body of the tongue, would be necessary. Finally an incision was made with a right-angled laryngeal knife, guided by a mirror. This resulted in prompt relief.

Sublingual Abscesses

These abscesses are for the most part secondary to bad teeth. Occasionally one will occur in connection with a calculus impacted in the sublingual duct, but this is rare. No one organism predominates but ultimately, as in all abscesses about the mouth, the pus will be foul. The course of development is that, pus having formed about the root of a tooth, the abscess ruptures through the bone into the floor of the mouth above the mylohyoid ridge, forming a swelling just under the mucous membrane. This situation is more likely to come about in connection with the incisors and canines than with the more posterior teeth. It must be remembered that the sublingual space communicates about the

posterior edge of the mylohyoid muscle with the submaxillary space so the pus may not be limited to the floor of the mouth, but may invade the neck as well. Another etiology must be mentioned. Since the introduction of local anesthesia by the injection of various solutions, a number of these abscesses develop following the extraction of teeth.

Whatever the course of development the symptoms are much the same. There is painful swelling under the tongue on one side which pushes that structure upward and backward, embarrassing breathing and swallowing. If the infection spreads beneath the jaw, a tender swelling develops in that region. The condition calls for adequate incision as soon as the pus can be localized. The drainage should be preferably into the mouth. If, however, submaxillary infection has developed, an external incision must be made parallel to the ramus of the jaw, displacing the submaxillary gland and thoroughly opening the submaxillary space.

It is necessary to describe here that inflammation of the floor of the mouth known as Ludwig's angina. This has such peculiar features that for many years it was described as a separate disease though there were always to be found eminent authorities who disputed that position, maintaining that it was only a form of submaxillary abscess.

Ludwig's[1] paper, published in 1836, gives an excellent description, not since surpassed. The infection arises as a rule in a decayed tooth or follows an extraction. The sickness begins with a slight fever, chills, fatigue, loss of appetite. A hard, painful swelling develops on one or both sides of the neck about the submaxillary gland, rarely about the sublingual or parotid. This hard swelling is the characteristic symptom. It progresses under the maxilla to the chin, perhaps to the opposite side, up over the jaw to the zygoma, down the neck to the clavicle, to the pharynx, to the larynx, to all the cellular and muscular tissue between the larynx and the mouth cavity. The tongue rests on a hard leathery mass which in the mouth feels like a hard ring along the borders of the maxilla. The patient can open the mouth only with distress and pain, speaking with difficulty partly from pressure on the larynx, and partly because the smaller throat muscles are affected. Swallowing becomes difficult on account of mechanical pressure.

For the first 4 or 5 days the general condition of the patient is fair. As the disease progresses, the skin over the swelling begins to redden, then some spots become soft, sink in, and give a feeling to the finger touching them as if there were air forming under the skin. Active

eruption of pus seems about to occur but this does not happen. At this stage, in the mouth cavity a part breaks through either in back toward the root of the tongue, or more often at the inner side of the maxilla, and an exceedingly foul, thin greyish or brownish red fluid is expelled. From then on there is rapid progress of the toxic symptoms, with death on the tenth or twelfth day in coma.

In some cases at autopsy the skin and immediately underlying cellular tissue were found unchanged. The deeper tissue was found to have disintegrated into a grey-black mass full of air bubbles. The salivary glands were unchanged. This suggests that the interstitial pressure is so great as to cause gangrene.

Ludwig's angina is summarized as follows:

1. Comparatively slight inflammation of the throat itself
2. Peculiar "woody" hardness of the cellular tissue
3. Hard swelling under the tongue with swelling of the floor of the mouth on the inner border of the mandible, with red and sometimes bluish coloration
4. Progress of swelling with well-defined border of hard edema in the neck
5. Slight infection or absence of infection in regional lymph nodes while swelling continues in surrounding cellular tissue

This statement of Ludwig that the lymph nodes were not affected is of great interest since there has been some dispute as to this. Price,[2] reporting on five cases in an article published in the *Annals of Surgery* in 1908, stated that the infiltration travels by the lymphatic spaces and by contiguity. In a discussion of Price's paper, G. D. Davis disagreed with Price as to the transmission by lymphatics. He stated that, although there are lymphatics in profusion along the deep vessels of the neck, no large lymph nodes are found in this disease. Grodinsky[3] in a very complete article published in *Surgery* in 1939 appears to demonstrate satisfactorily that the spreading is by fascial planes. This seems to be generally accepted by modern authors.

The treatment of Ludwig's angina has travelled the complete circuit from medical through surgical procedures and now seems about to become medical again. Ludwig reported one patient who was cured after 3 weeks by extensive blood letting, caustic applications to the swelling itself, very strong emetics, diet, and cataplasms. By 1885 surgi-

cal treatment was firmly established. A. Barker[4] published a paper in the *Lancet* in that year in which he reported two cases with recovery. He recommended early incision in the midline combined with free stimulation, the use of quinine and ferruginous tonics. Price, in his article already cited,[2] recommended very extensive incisions over the submaxillary triangles through the mylohyoid muscles, also in the midline between the hyoid bone and symphysis to the mucous membrane. If the sublingual tissues were very edematous, Price suggested that the mucous membrane be incised from the midline to the second molar tooth, then that a curette be inserted and the tissue curetted wherever there was a feeling of the tissue giving away. Four of his five patients recovered.

Rehn[5] in 1922 expressed dissatisfaction with the generally recommended therapy of early and extensive incision from the outside. He lost three successive patients treated by that method. He recommended complete extirpation of the submaxillary gland.

Medical treatment was again hinted at in an article by Blassingame,[6] in the *Memphis Medical Journal* in 1938. He suggested that sulfanilamide might influence the disease in the very early stages. Once necrosis had set in, however, he believed surgical drainage must be employed.

Hendricks[7] expressed active dissatisfaction with surgical results. He reported one patient who died, although operated on within 24 hours of the onset of the disease. A second patient recovered on whom a tracheotomy was done at once and then drainage incision made. A third patient recovered on sulfanilamide alone. He thinks the possibilities of sulfanilamide therapy should be more vigorously investigated.

Leonardo[8] reported twenty-one cases. This gave a rate of one case in 3630 hospital admissions. He insisted on very complete incision through the mylohyoid muscle, followed by the use of sulfanilamide postoperatively. This gave a mortality of 5 per cent. Thomas[9] reported 40 per cent mortality in 106 cases.

However the use of sulfanilamide may ultimately influence this disease, undoubtedly the best present treatment is by early and very extensive incisions, the neck being explored until the abscess is found and freed. The results at the Presbyterian Hospital bear this out.

Experience at Presbyterian Hospital

In the past ten years there have been twenty-eight cases classified as Ludwig's angina at the Presbyterian Hospital. Reading the history

TABLE I

SUMMARY OF 28 CASES OF LUDWIG'S ANGINA

SEQUENTIAL TO		TREATMENT	
Extraction of teeth	14	Pus released by incision	21
Sore throat	3	Incised, no pus found	3
Tongue abscess	1	Subsided without incision	4
Bad teeth	8	Total	28
Barber's itch	1		
Mastoidectomy	1	Died	2
Total	28		

and the examination of these cases one must conclude that there is a tendency at the present time to call all sublingual and submental inflammations Ludwig's angina. None of these cases strictly conform to the description originally given by Ludwig. They do not show the board-like hardness which he mentions and in most of them, when incised, a localized abscess was found. On the other hand perhaps we may conclude that the cases Ludwig described were in reality submaxillary abscesses which were not treated surgically and hence went on to a fatal termination. In any event, the treatment in this series has been much more successful than in many hitherto reported (Table I).

INFECTIONS OF THE LYMPHOID TISSUE OF THE TONGUE AND NASOPHARYNX

The lingual tonsils may be the site of quite as severe an infection as the faucial tonsils, though this is much more rare. In itself such an attack, even though caused by a streptococcus, is not as a rule serious. It must be remembered, however, that the infection is close to the larynx and may occasionally give rise to an embarrassing edema. It is probable, moreover, that some of the rare lingual abscesses begin as a lingual tonsillitis. It is necessary therefore to treat such infections with care. As a rule they improve quickly with local applications. Appropriate chemotherapy should of course be used.

INFECTIONS IN THE NASOPHARYNX

Occasionally a streptococcal infection will lodge in the nasopharynx. These patients will be very sick, not only on account of the distressing

local symptoms but because the toxemia is severe. There is, moreover, always the threat of an otitis media and its sequelae. Examination with a postnasal mirror will show the whole posterior wall of the nasopharynx to be plastered with membrane. Local treatment is difficult and the condition has been found to be very persistent. The use of chemotherapy may greatly alter this picture.

Infections of the Tonsils and their Sequelae

I shall limit my discussion to acute infections of the tonsils and their more important sequelae. Any discussion of diphtheria will also be omitted.

The tonsils are distributing points of infection. Secondary to tonsillitis any part of the respiratory tract, or the ears may be invaded. It has already been pointed out that an abscess of the tongue may be related to a tonsillar infection. The tonsils being distributors of infection, any means of limiting infection to them alone should certainly be used. Chemotherapy is one of these means. Our experience at the Presbyterian Hospital has been this, that sulfanilamide for instance, does not make much change in the ordinary course of a tonsillitis but that the complications are fewer when it is used. Once a complication has ensued, such as a peritonsillar abscess, surgical treatment will be indicated. Even then the drug should be continued after operation. The experience of Rhoads and Afremow[10] at the Cook County Hospital and Evanston Hospital has been less favorable. Treating thirty-one patients with sulfanilamide, thirty-six patients untreated being controls, appeared to make little difference in the results. In fact they concluded that the drug had no favorable effect on the severity of the symptoms, the period of incapacity or the incidence of complications. Moreover, in some instances, the reactions were serious enough to cause concern. They question the routine use of sulfanilamide in uncomplicated cases of tonsillitis and pharyngitis. They do, however, urge the use of the drug when complications occur, such as cervical adenitis, paranasal sinusitis, or otitis media.

At the Presbyterian Hospital our results have been checked in connection with otitis media. In a group of 100 children, half received sulfanilamide, half did not. In those receiving the drug, the duration of the discharge was on the average, 8 days. In those who did not receive the drug, the average duration was 12 days. Two per cent of the treated

cases had mastoidectomies, whereas 12 per cent of the untreated cases had mastoidectomies.

Of the various sequelae, I shall discuss laryngeal abscess, laryngotracheobronchitis, and peritonsillar abscess.

Laryngeal Abscess

A number of laryngeal abscesses are caused by the trauma of a swallowed foreign body. In such cases the train of events is easily followed. After the pain of the injury, there succeeds a period of more or less comfort. Then, as infection ensues, pain on swallowing develops, and perhaps some dyspnea. It is the characteristic of these traumatic abscesses, however, to be limited in their effect. Many of them are confined to the epiglottis. Examination with the mirror reveals a limited swelling which may already show a whitened area where the pus is pointing. Should threatening edema develop, the larynx should be exposed with a direct speculum, or a mirror and the edematous area scarified. As soon as an area of pointing presents itself, the abscess should be incised. As a rule healing is prompt.

The laryngeal abscess secondary to acute streptococcal pharyngitis or tonsillitis is much more stormy in its course. The infecting organism is as a rule an extremely virulent streptococcus. Pain in the throat is from the beginning severe, and difficulty in breathing may soon follow. Examination of such a larynx shows great swelling of the epiglottis and the aryepiglottic folds. At so early a stage no focus can be seen. It is customary to use for these cases, steam inhalations, sprays of cocaine and adrenalin and the like. These measures may at times suffice. The safest procedure however, is early and deep incisions made in the epiglottis and the folds. These incisions will relieve the edema. An abscess will probably form later and may discharge through these incisions or may need separate incisions. Occasionally the infection will penetrate to the perichondrium lining the inner surface of the thyroid cartilage. An abscess will then form in the pyriform fossa which must be drained by external incision in the neck. Such an abscess, undrained, may penetrate to the vascular sheath and invade the mediastinum.

The treatment, then, of acute laryngeal abscess is early scarification. A tracheotomy will thus be avoided. Later, drainage of localized pus must be effected by incision under direct exposure. If the pus reaches the pyriform fossa, an opening through a window in the thyroid cartilage

TABLE II

ANALYSIS OF FIVE CASES OF ABSCESS OF THE LARYNX

1. Sore throat for 24 hours; epiglottis swollen; ruptured on one side; opened the other.	4. Sixteen days old, ailing; abscess found at autopsy.
2. Pain for 36 hours; swelling left side of larynx; ruptured.	5. Pain in throat 2 weeks; admitted choking; tracheotomy; incision of laryngeal abscess; ligation of internal jugular vein; drainage of lung abscess; died.
3. Foreign body day before; larynx blocked; tracheotomy; discharged in 7 days.	

and external incision low down in the neck may be required (Table II).

It will be seen that two of these cases came from infection and one from a foreign body. Only one of them had to be opened. Two ruptured spontaneously; one case of foreign body required a tracheotomy within 24 hours. In a paper published by Henry P. Schugt and myself,[11] five additional cases were reported. In addition I have seen three others. There have been two deaths among the thirteen patients, one due to mediastinitis, the other to lung abscess.

LARYNGOTRACHEOBRONCHITIS

In my experience this begins with terrifying suddenness. A child may complain of sore throat at noon and by evening be at the point of death from strangulation. Examination of the pharynx may show only a red throat. Examination of the larynx with the direct speculum shows the tissue fiery red, perhaps covered with white membrane. The cultures do not give uniform results; various forms of streptococci or pneumococci show. Two of the most severe cases I have seen showed the influenza bacillus in the throat culture and also in the blood stream. One of these patients recovered when given sulfanilamide.

My procedure is to do a tracheotomy if there is any difficulty in breathing. I have tried combating the dyspnea with steam and oxygen-helium in a tent. The latter beyond doubt relieves dyspnea for a time, but cannot maintain the improvement. My procedure is to pass a bronchoscope through the inflamed larynx, and perform a tracheotomy on that as a guide. Observation at that time shows the bronchial mucous membrane already inflamed, perhaps covered with membrane. The pa-

TABLE III

SUMMARY OF THE 18 CASES OF LARYNGOTRACHEOBRONCHITIS

Recovered	12	Deaths in tracheotomies	6
Died	6	Patients given sulfanilamide	12
Tracheotomies	10	Deaths in sulfanilamide group	3

tient is then kept in steam; sodium bicarbonate solution is instilled through the tracheotomy and perhaps bronchoscopy repeated many times for the removal of the membrane. The mortality of this disease has been 50 per cent. There was a remarkable increase in laryngotracheobronchitis in the years 1938 and 1939. George Brighton working with the patients at Babies Hospital, including also private cases, found the mortality among the tracheotomized cases to be 40 per cent. He makes the interesting suggestion that this may be a virus disease, not due to any bacterial organism, which would explain the cultures being so varied. He bases this idea on experimental work which has been done in connection with laryngotrachitis in chickens. This disease in these animals has proved to be due to filterable virus. The pathological changes found in the mucous membrane of the trachea are similar to those found in human beings who have died of this disease. Although it is not always safe to compare results in animals and human beings, the close resemblance of the two diseases is at least suggestive. Brighton's report is based on twenty-eight patients all of whom had tracheotomies. Many of these were private patients who perhaps received more intensive nursing care.

It will be seen from Table III that six out of ten of the patients who required tracheotomy died. Sulfanilamide appeared to make very little difference in these extremely ill children. One patient died 6½ hours after admission although he was given prontylin intravenously.

PERITONSILLAR ABSCESS

W. Krainz[12] explains the tendency to peritonsillar abscess in those subject to chronic tonsillitis in the following way. The crypts of the tonsils are always more or less occupied by a mass consisting of cell detritus, food, bacteria and the like. Owing to the action of the palatal muscles during swallowing, the crypts are for the most part kept clear

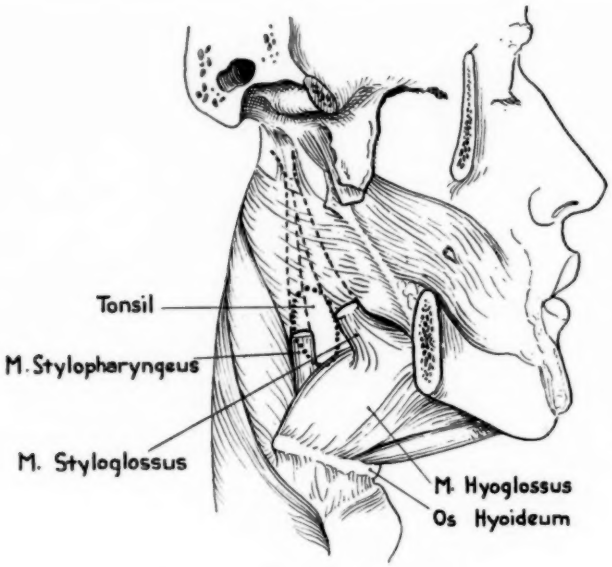

Fig. 1—The anatomy of the tonsillar region.

of these masses. When there have been many attacks of tonsillitis, however, there is a deposit of fibrous tissue in the tonsil which prevents the emptying of the crypts. Then the masses in the crypts become infected and abscesses are formed.

Such abscesses begin in the depth of a crypt. Swelling about the mouth of the crypt blocks off the drainage and the abscess ruptures outward into the space between the tonsil and the walls of its fossa formed by the pillars in front and behind and the superior constrictor of the pharynx to the outer side. As a rule the abscess develops high in this space and points forward between the anterior pillar and the tonsil at its upper pole where it can be opened after 5 or 6 days. The result then is immediate relief.

Sometimes the result is not so happy. The abscess may be low between the tonsil and the posterior pillar. Then it can be reached for incision only with great difficulty. The result may finally be spontaneous rupture without the intervention of the surgeon. Both of these results, though the patient has suffered much for a number of days, are considered satisfactory.

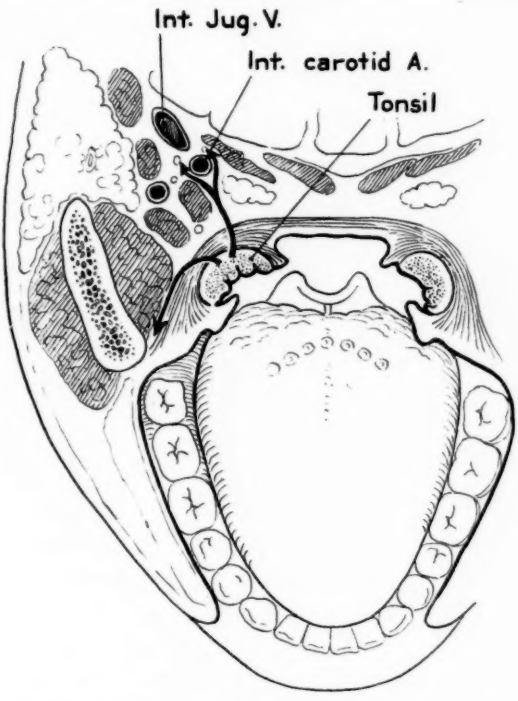

Fig. 2—The relation of the tonsil to the great vessels.

Things, however, may not turn out so well. The surgeon may make several incisions without finding the abscess. The tonsil may continue to protrude into the throat; pain and dysphagia may continue and a swelling appear outside in the neck. To explain this we must consider the anatomy of this region. It has been said that the tonsil lies on the superior constrictor of the pharynx. This muscle forms the inner wall of the pharyngomaxillary space, bounded on the outer side by the maxilla and internal pterygoid muscle, above by the base of the skull, behind by the muscle of the vertebral column. It is divided into an anterior and posterior compartment by the styloid process and its muscles. The anterior compartment contains the parotid gland and communicates below with the submaxillary space. The posterior compartment contains the great vessels of the neck in their sheath which runs into the mediastinum.

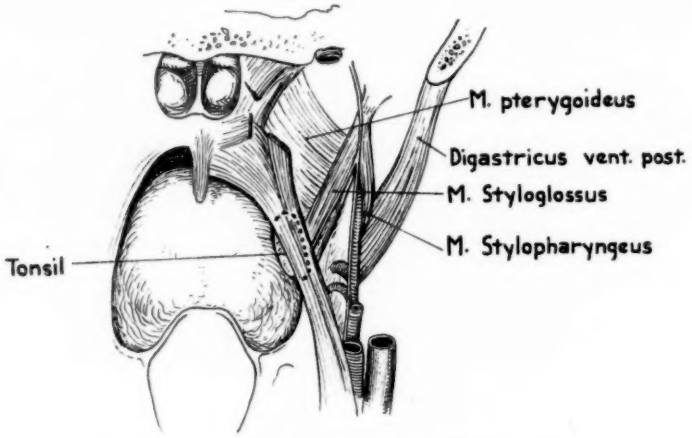

Fig. 3—The relation of the tonsil to pharyngeal muscles.

The peritonsillar abscess which does not respond to incision and drainage has broken through into the pharyngomaxillary space. This accident of course greatly increases the danger to the patient, the degree depending on where the rupture takes place. The pus may take one of four directions. If it ruptures high into the anterior compartment, it will lie between the internal pterygoid muscle and the pharynx. There will be no external swelling but considerable trismus. If the rupture occurs lower down, the pus will follow the styloglossus muscle to the floor of the mouth and form a submaxillary abscess. It will not pass down the neck. If the pus passes behind the styloid process it may reach the posterior triangle of the neck at the base of the skull. This very rarely happens. In one of the few cases reported there was severe hemorrhage because in the passage of the pus beneath the great vessels, the internal jugular vein was eroded.

Pus pointing into the posterior compartment is much more likely to break into the sheath of the great vessels and pass down the neck toward the mediastinum. Even though this does not occur, the mere contact of the pus with the vein may cause thrombosis of the internal jugular vein with consequent general sepsis. It should be recalled moreover, that the tonsil lies in a plexus of veins. Thrombosis of these small radicals may extend to the internal jugular.

Pus may reach the vascular sheath in still another way secondary

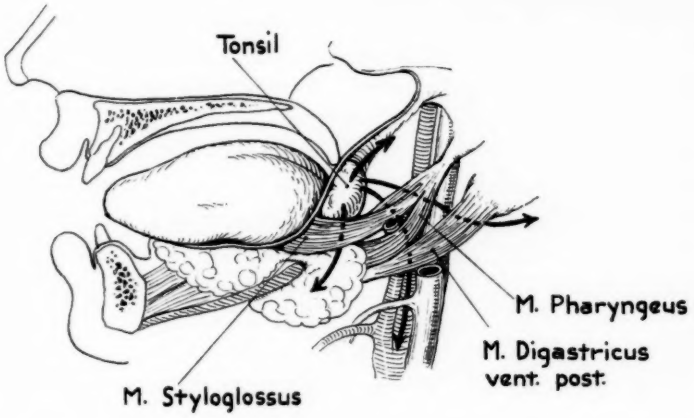

Fig. 4—Four possible paths along which peritonsillar abscess may travel when it has broken into the pharyngomaxillary space.

to tonsillar or peritonsillar abscess, namely, through the lymphatics. If the glands along the great vessels break down and suppurate, the pus will be in contact with the vein.

A number of so-called peritonsillar abscesses occur secondary to the extraction of teeth, and the formation of a submaxillary abscess. In these cases the pus has followed backward the route which leads from the pharyngomaxillary along the styloglossus muscle to the submaxillary space. These are not in reality peritonsillar abscesses. They are from the start deep abscesses of the neck.

Upon the entry of the pus into the neck, new symptoms are added to those of peritonsillar abscess. Severe trismus develops in connection with abscesses of the pharyngomaxillary space. The submaxillary abscesses develop characteristic local symptoms. The abscesses along the vascular sheath are liable to cause edema of the larynx and difficulty in breathing of such a degree that a tracheotomy may have to be considered. The chills and fever of septicemia will follow infection of the vein.

Treatment of Peritonsillar Abscess

In view of the dangerous complications which may arise in connection with peritonsillar abscess many have been discontent with the ordinary treatment, namely, hot irrigations till the pus points, then,

incision into the anterior pillar. The suggestions have been: (1) separation of the superior pole of the tonsil; (2) partial tonsillectomy, the superior pole of the tonsil being removed; (3) total tonsillectomy. These operations are done during the acute attack.

There appears to be little more to be said for separation of the superior pole of the tonsil than for simple incision or for separation of the anterior pillar from the tonsil with a tonsil hook, a procedure which has long been carried out at the Presbyterian Hospital. When this procedure is successful, it suffices but the pillar may adhere again and so block drainage and, moreover, low posterior abscesses are not reached.

Schroeder[13] reports on the treatment of peritonsillar abscess at the Sundby Hospital, Copenhagen; 92 patients were treated by the usual peritonsillar incision and made a satisfactory recovery. Fifty-six patients needed further operative treatment for the following reasons: In fifteen cases no pus appeared after repeated incisions and the temperature remained high; in thirteen cases the abscess was followed by nephritis; in eleven cases edema of the glottis occurred; in seventeen cases parapharyngeal abscess formed; in two cases there was thrombophlebitis of the internal jugular vein; in forty-three of these patients detachment of the upper pole was done, in five cases on both sides; in the remaining thirteen patients, total tonsillectomy was done. All of these patients recovered without further complications. The procedure was carried out under local anesthesia.

As early as 1911 (Winckler[14]), total tonsillectomy during the attack was suggested and carried out. Salingre[15] (Helsingfors) is one of those who advocates this procedure, especially in cases threatened with complications, or in cases in which the abscess is low down or far back. He uses local anesthesia, injected into the palatine foramen and into the lower pole of the tonsil. He employed this procedure in fifty-four cases; all were successful.

Other authors are even more enthusiastic than Salingre, unreservedly recommending tonsillectomy during the attack and even advocating the removal of the tonsil on the opposite side. Blashki[16] is one of these. He reports thirteen patients operated on under general anesthesia. One of these died from heart failure, the anesthetic risk being known beforehand. W. Klose[17] urges double tonsillectomy on these patients because of the frequency of concealed abscesses. In twenty-four of his patients an unsuspected abscess was found on the opposite side on the occasion

of abscess tonsillectomy. In eleven patients abscesses developed after repeated incisions had supposedly healed the peritonsillar abscesses. In eight patients entirely unsuspected abscesses were found on tonsillectomy. He maintains that many more concealed abscesses will be found if sought for.

One of the advantages especially emphasized by those who advocate tonsillectomy during the attack of peritonsillar abscess is that this procedure makes possible the drainage of pus which has already penetrated to the parapharyngeal space. The tonsil being removed, the fistula leading to the extrapharyngeal collection will be exposed. The enlargement of this fistula will promote drainage into the pharynx and thus external operation will be avoided.

To those who fear the spreading of the infection by tonsillectomy in the presence of an abscess, the article by Gangl-Battig[18] may be pointed out. This author has demonstrated that the height of the attack is the very time when the resistance of the patient is highest. Once a well demarcated abscess is formed, the greatest danger is over. Drainage then becomes the greatest necessity, and this is best accomplished by tonsillectomy. Surely no one hesitates to remove an appendix in the presence of pus. Why not, then, tonsillectomy?

It may be taken for granted, then, that a good case may be made out for tonsillectomy during the active stage of peritonsillar abscess, especially in cases threatened with complications. I am not quite prepared, however, to recommend the procedure unreservedly. Some bad results have been experienced, especially when the opposite sound tonsil has also been removed. At the Presbyterian Hospital only a meager number of cases can be reported on. These were all done under general anesthesia, only the diseased tonsil being removed. The results were most gratifying. All pain appeared to cease at once, and all patients were able to eat freely within 24 hours.

Little has been said as to the use of sulfanilamide in these cases. This is because our results have not yet been sufficiently numerous to make them of value. A number of cases have, to be sure, resolved without developing pus, but you will note on the table that this has also been brought about by hot irrigations. Reports in the literature on the use of sulfanilamide are as yet few. Hubert and Leroux[19] reported on twenty-two patients treated with this drug. Sixteen of these recovered without surgical intervention, and in six, surgical intervention was nec-

TABLE IV

FEATURES OF 320 CASES OF PERITONSILLAR ABSCESS

Previous attacks	49	Complications	57
Previous tonsillectomies	9	Hemorrhage	6
Tonsillectomies	40	Otitis media	15
Ruptured after irrigations	57	Cellulitis of neck	8
Incised	162	Acute cervical adenitis	6
Incised more than once	19	Arthritis	2
Arose from teeth	39	Rheumatism	4
Resolved on irrigation without pus	19	Erysipelas	5
Incised after prontylin	7	Abscess of pharynx	11
Resolved after prontylin	25		

essary. They conclude that if given early sulfanilamide may prevent suppuration, but that every formed abscess must be opened. Sonnenschein[20] made a report on two patients. In one of these, the abscess reruptured spontaneously; in the other, it resolved without suppuration. These reports are too few to justify any conclusions.

In the past 10 years we have had 320 cases of peritonsillar abscess which I show in tabulated form (Table IV).

REFERENCES

1. Ludwig, D. Ueber eine in neuerer Zeit wiederholt hier vorgekommene Form von Halsentzündung, *Med. Cor.-Bl. d. württemb. ärztl. Ver.*, 1836, *6*:21.
2. Price, J. W., Jr. Ludwig's angina; report of 5 cases, *Ann. Surg.*, 1908, *48*: 649; Discussion, 788.
3. Grodinsky, M. Ludwig's angina; anatomical and clinical study with review of literature, *Surgery*, 1939, *5*:678.
4. Barker, A. Two cases of angina Ludovici, *Lancet*, 1885, *2*:571.
5. Rehn, E. Die Behandlung der Ludwigschen Phlegmone durch Exstirpation der Glandula submaxillaris, *Klin. Wchnschr.*, 1922, *1*:2138.
6. Blassingame, C. W. Ludwig's angina and deep infections of the upper part of the neck, *Memphis M. J.*, 1938, *13*: 196.
7. Hendricks, W. C. Surgery or sulfanilamide in Ludwig's angina? *M. Rec.*, 1939, *150*:415.
8. Leonardo, R. A. Ludwig's angina; review of 21 cases, *J. Internat. Coll. Surgeons*, 1940, *3*:82.
9. Thomas, J. J. Ludwig's angina; an anatomical, clinical, and statistical study, *Univ. Penn. M. Bull.*, 1908, *21*:2.
10. Rhoads, P. S. and Afremow, M. L. Sulfanilamide in treatment of sore throat due to hemolytic streptococci, *J.A.M.A.*, 1940, *114*:942.
11. Kernan, J. D. and Schugt, H. P. Abscess of the larynx and its treatment, *Ann. Otol., Rhin. & Laryng.*, 1934, *43*: 1009.
12. Krainz, W. Chronische Tonsillitis und Peritonsillarabszess, *Wien. klin. Wchnschr.*, 1937, *50*:737.
13. Schroeder, R. Some remarks on the surgical treatment of peritonsillar inflammations, *J. Laryng. & Otol.*, 1936, *51*: 631.
14. Winckler, E. Ueber Therapie der phlegmonösen Entzündungen des Waldeyer-

schen Ringes, *Deutsche med. Wchnschr.*, 1911, *37*:2139.

15. Salingre, E. Erfahrungen über die Tonsillectomie bei Peritonsillarabscess und septischer Tonsillitis, *Acta oto-laryng.*, 1938, *26*:480.
16. Blashki, E. P. Tonsillectomy à chaud in quinsy; report of 12 cases, *M. J. Australia*, 1939, *2*:936.
17. Klose, W. Über die getarnten Paratonsillarabscesse, *Arch. f. Ohren-Nasen- u. Kehkopfh.*, 1938, *145*:298.
18. Gangl-Battig, O. Die Abscesstonsillektomie, *Zentralbl. f. Hals-Nasen- u. Ohrenheilk.*, 1938, *30*:1.
19. Hubert, C. and Leroux, M. Les composés di-azoïques dans le traitement des abcès péri-amygdaliens, *Oto-rhino-laryng. internat.*, 1937, *21*:137.
20. Sonnenschein, B. A resume of sulfanilamide treatment of peritonsillar abscess, *Illinois M. J.*, 1939, *75*:450.

THE DOCTOR IN COURT*

BERNARD L. SHIENTAG

Justice of the Supreme Court, First Judicial District, New York

THIS meeting, having as its subject "The Doctor in Court," concludes the series dealing with medical aspects of personal injury actions and disability insurance. The symposium was arranged with the coöperation of The New York Academy of Medicine and the Medical Society of the County of New York. We are especially indebted to Dr. Malcolm Goodridge, President of The New York Academy of Medicine, and to Dr. Walter P. Anderton, now past President of the Medical Society of the County of New York, for their advice and their assistance.

At the last three meetings we listened to interesting and instructive lectures on certain medical aspects of trauma and disease. The large attendance showed the keen interest of the Bar. Apart from their intrinsic value, these lectures will, I am sure, serve to bring the two great professions of medicine and of law closer together; they will foster a deeper knowledge of the relations of those professions to each other. They will, we hope, serve as the keystone of a new and a better understanding and be the beginning of a regular periodical interchange of lectures and discussions that will help to solve our mutual problems.

If I may be pardoned a personal reference, these meetings have for me a special significance. As a youth, I wanted to be a doctor. Every penny I could save went to the purchase of old medical books and magazines found on the second-hand book stalls of Fourth Avenue. I certainly acquired a motley collection. Every hour I could spare from college work was spent in visiting dissecting rooms and the operating theatres. But my youthful hopes were not to be realized. I did not enter medical school; but I never lost my early love for the science and the art of medicine.

By one of those compensating dispensations, from an early date in my work as a lawyer, I found myself professionally engulfed in a medi-

* Presented February 25, 1941 in the symposium conducted by the Association of the Bar of the City of New York in connection with The New York Academy of Medicine and the Medical Society of the County of New York. Judge Shientag was Chairman of the Committee on Post-Admission Legal Education of the Bar Association, under whose auspices these lectures were given.

cal atmosphere. With the Factory Commission came the problems of industrial hygiene and occupational diseases. With the Labor Department and the Bureau of Workmen's Compensation came the problems of medical examinations and treatment and the fascinating and absorbing study of the relationship between trauma and disease. On the Bench came the most frequent contact with problems of accidents and disease, of mental sickness and incapacity. So, while I have been lawfully wedded to the law, medicine is still my mistress, one that will always be wooed with longing and with ardor.

Indifference is always a grave peril, for rust will crumble a metal where blows may only tend to harden it. If doctors complain of their treatment in our courts of law, and lawyers find fault with the way doctors testify, we should not remain indifferent. The sensible thing is to ascertain the facts, to find out what is causing the discord, to decide upon the proper remedies, and to see that they are carried out.

The doctor plays a large and a vital part in the administration of justice. Yet what does the average doctor know about procedure in the courts, and what does the average lawyer know about the practice of medicine and the problems of his medical brethren?

For the medical profession we, of the law, have the greatest respect and admiration. We thrill to the reading of the ancient Hippocratic oath, that lofty and most unselfish dedication to the service of humanity, to the alleviation of misery, suffering and distress. The mission of the doctor is of the highest and noblest kind, in assuaging pain, in restoring health, and in turning back the hand of death.

We rejoice that the glorious march of science in medicine has always inured to the benefit of mankind, and we pray God that it may ever continue to do so.

Our two great and honorable professions have the same high ideals of truth and of loyalty, the same continuity of tradition, the same impulse to shake off the shackles of outworn dogma and of obsolete rules which hamper progress. We in the law have much to learn from you doctors in connection with your educational methods, your clinical instruction in small groups, the even balance you maintain between the study of the science of medicine and the practice of its art.

We have much to learn from you in connection with your emphasis on the prevention of disease; we have much to learn from you about your systematic postgraduate instruction, the splendid educational ac-

tivities carried on by your medical societies, your encouragement of the study of the history of medicine and the literature of your great profession—studies which broaden the outlook and liberalize a man's conception of his calling. We lawyers derive inspiration from the works of the great masters of medicine, the writings of Osler and Cushing in this country and of Allbutt and Moynihan in England.

So you see, my medical brethren, that when you enter the home of the law you are among friends. But, you say, that's all very well. We like to meet lawyers socially, but in the court room—that's a different story. But is it a different story, and what makes it so? What is there to do about it?

The experienced and distinguished speakers of the evening will elaborate on this theme. They will discuss the duties and responsibilities of the judge, the lawyer and the doctor when medical testimony is given in court. Let me commend to my brethren at the Bar the injunction of Ecclesiasticus: "Honor the physician with the honor due unto him." A doctor appearing in court is entitled to the respect, the courtesy and the consideration due to a professional brother. Unhappy is the lot of a client whose lawyer is foolish enough to resort to a rude, unfair cross-examination of a doctor. Indeed it is the rare exception for a Judge to sit by and ignore the extravagances of bitter and misleading cross-questioning.

The subject of the medical expert and of the much abused hypothetical question will be discussed from different angles by the speakers of the evening.

It has been my observation that of doctors who give testimony in court there may be said to be five kinds.

1. The careless doctor—careless in his appearance, in the way he has kept his records, in his manner of testifying; careless in answering before he has even grasped the purport of the question.

2. The doctor who doubts everything—the morbid doubter, he has been called. He is generally a man who knows his subject, but is constitutionally unable to make up his mind and to express any opinion. His testimony does nothing to aid the cause of his patient or the administration of justice.

3. The noisy, pompous doctor—of boundless and confident conceit. He knows and gives the answers before he is even asked; with an evident and irritating sense of superiority he talks down to the judge and jury,

and is so cocksure of everything that he soon becomes the architect of his own ruin. He should bear in mind the observation of a distinguished artist, that the man who paints with a big brush is not of necessity a great painter.

4. The technical, lecturing doctor—who seeks to impress the court and jury, generally without success, and attempts to substitute for ability and for a candid and sound medical opinion what has been aptly termed "the mutterings of robustious nonsense."

5. The sensible, competent doctor. Fortunately, most of those who testify in court belong to this class. This doctor carries himself with unassuming professional dignity. He is prepared for accuracy in his testimony. He answers questions directly, without long and learned dissertations. He uses a minimum of technical terms, and when he finds it necessary to use them, explains them in plain, simple language. He does not allow himself to become the victim of a not uncommon human capacity—the capacity for self-deception. Nor, to use the language of Dr. Da Costa, is he the type of expert witness who possesses "one of those trained memories which is able to remember everything advantageous and nothing harmful to his side of the case." He is as sound as he is fair, and impresses you with the force of his conviction and his fine impartiality. He is the master of his temper and slow to anger, no matter how great the provocation. His patients call him blessed, and to the court he is "As an hiding place from the wind, as rivers of water in a dry place, as the shadow of a great rock in a weary land."

Parenthetically, I might add that there would be no difficulty in classifying lawyers along somewhat the same lines.

Whether, to what extent and under what circumstances, the presiding judge has or should be given the power to appoint an impartial medical expert will be considered later in the evening. Let me say at this time that for the most part we must rely on education to improve the position of the doctor in court. The more the lawyer knows about the medical aspects of his cases the less opportunity there will be for prejudiced, incompetent or misleading medical testimony; the more the doctor knows about the court procedure and the elementary rules of evidence the less the likelihood that he will leave the stand feeling that he has been placed in a false light or that he has been improperly taken advantage of by his legal inquisitor. It is this process of education, not casual or haphazard, but continuing at regular intervals, that it is hoped

meetings like this will stimulate.

The Bar is eager to coöperate with the medical profession to eliminate abuses and just causes of complaint. From what I know of the doctors, they will meet us more than half way in this most worthy endeavor. By working together in a spirit of mutual respect, tolerance and helpfulness, we shall most surely and confidently advance along the road of progress.

THE DOCTOR IN COURT*

GEORGE Z. MEDALIE

Vice-President, The Association of The Bar of the City of New York

THE votaries of law and of medicine meet tonight in an endeavor, by frank discussion, to find a way in which both can coöperate to serve the cause of justice. The problems involved are not peculiar to the field of medico-legal jurisprudence. Other phases of the law present similar problems. The Bar Association, where we meet this evening, maintains a host of committees dealing everlastingly with similar problems. On occasion, these committees believe that they have found solutions. These are subjected to discussion and criticism but do not always meet with legislative or judicial approval, or, for that matter, with the approval of the Bar itself. And even when a solution for a particular defect in the administration of law and justice is agreed upon, new creaks are found in the machine, and effort at readjustment is renewed.

Justice is a human and practical institution. Only a constant and zealous regard for its efficient working on the part of those who participate in it, or are affected by it, can maintain it as a living and useful reality. On that aspect of justice in which the physician and the lawyer are jointly interested, it is refreshing to know that there is the desire for mutual coöperation and that the courts, in whom vests the greatest responsibility, join in our efforts for better understanding and mutual aid.

I think, perhaps, that I am in error when I say that both professions display this interest. It would be an error indeed if I left the impression that the Bar as a whole, and that Medicine, as a whole, felt a keen interest in the problems which we consider; for the fact is that most members of our two professions have no contact with medico-legal problems, and therefore have only a passing interest in their solution.

However, this need not be a cause for deep regret, for usually responsibility and interest attach only to those who meet with particular problems in the course of their daily work.

* Presented February 25, 1941 in the symposium conducted by the Association of the Bar of the City of New York in connection with The New York Academy of Medicine and the Medical Society of the County of New York.

In subject matter and in operation the work of the physician and of the lawyer seems set apart by almost astronomical distances. But there is one respect, at least, in which both professions are quite alike. If my medical friends will not take umbrage at this remark, I should like to observe that both lawyer and doctor learn what they know as a result of trial and error.

The law is not static and neither is medicine. What was sound doctrine for judge and lawyer a generation ago is unlearned by the elders of the profession,and never taught to its neophytes. What was good policy in the administration of justice a century ago sounds fantastic in this new and constantly changing world.

I need hardly add the obvious so far as medicine is concerned. Its field of knowledge is wider today, its factual data greater than a generation ago; there are new techniques, new opinions as to the nature, cause and character of disease, new methods of treatment, and in many ways there exists an entirely changed outlook.

It is because of this similarity in both fields, namely, our learning by trial and error, our constant change of opinion and viewpoint, and the acquisition and discarding of beliefs, that the doctor and the lawyer can and should understand each other and in dealing with matters of common interest and mutual contact find ways and means, not simply to get along, but to discuss those questions in which the public interest is concerned in the administration of justice.

Shortly after Judge Shientag gave me this assignment, I tried to find out how doctors and lawyers felt toward each other as a result of their contacts in the court room. I made no attempt to emulate Dr. Gallup, but in my own crude, unscientific way, I convinced myself, as a result of a considerable number of interviews, that the doctors as a whole were not satisfied with the lawyers, and that, generally speaking, lawyers were sometimes dissatisfied with their medical friends.

And, I may add, that the doctors, too, have expressed considerable dissatisfaction with the courts and the law.

Insofar as laymen have given any thought to the conduct of medico-legal cases, there is no lack of dissatisfaction among them as to all of us—judge, lawyer and doctor, and the law as well; but, after all, we are only human beings and, conscientious though we may be, we are far from perfect. But we may console ourselves at least with one thought. We come together to consider our subject in the public interest. So that

justice may be done, as nearly as that is humanly possible; we are anxious that neither side permit error to continue, that no one frustrate the search for the truth, or make the task of any concerned in the process difficult or unpleasant.

In recent years, some have come to question whether the judicial process is the most effective method for deciding the medical problems that arise in connection with the numberless issues in which the physician may give testimony. At present, our courts are concerned with medical testimony mainly in negligence cases. These deal in large measure with injuries arising out of automobile accidents.

Injuries attributed to the operations of common carriers play a smaller part. There are also a very considerable number of cases on the calendars of our courts which concern themselves with personal injuries arising from the operation of property. Then, too, there are the malpractice cases.

In the past, and before the Workmen's Compensation Law became operative, factory accidents furnished a considerable contribution to our tort calendars. Not infrequently in probate proceedings, questions arise as to the testamentary capacity of the testator; but for the total number of wills offered for probate, such contested issues that actually go to trial are really few in number. Occasionally, too, arises the issue of the mental incompetency of a person whose means are substantial enough to give his family serious concern. But these issues, too, are tried only now and then.

In criminal cases, there is also supposedly a wide field of litigation involving the sanity of the accused. Actually, however, such issues are tried only occasionally. But most discussion of medical expert testimony on the part of the public and in our public prints arises from that particular group of cases.

It is less important that a lawyer earn a fee for the trial of a case, and that the doctor receive compensation for giving expert testimony in a court, than that the truth be determined speedily with as little complication as possible, and as inexpensively as the situation will permit.

Thus, from time to time, various proposals have been seriously brought forward, designed to do away with supposedly biased testimony on the part of the physician, to eliminate conflicts in expert opinion, and to assure speedy and inexpensive justice to claimant and defendant in civil cases, and to the public and the defendant in criminal cases.

I do not mention these proposals because I either favor or oppose any of them. I call attention to them only because these changes in our administration of the law come to us because there is dissatisfaction in this aspect of our judicial system.

Serious minded people have been impressed with conditions which, rightly or wrongly, they consider hamper us in the search for truth and in the determination of rights. They point to the fairly satisfactory operation of our Workmen's Compensation Laws as a substitute for needlessly contested trials in our courts in which, they say, evidence, including medical testimony, is so presented that it becomes a question of gamble and skill rather than of justice and of truth in the making of judgments.

Few go so far as to suggest that all personal injury cases be determined by any such procedure and the elimination of our courts, but there is a not inconsiderable group who would start now on the basis of the adoption of a compulsory automobile insurance law to put that large group of personal injury cases into the field of administration, and practically out of the reach of our courts.

Many suggestions for the determination of issues of insanity and criminal responsibility for similar reasons have been made, so that there would be two trials, one, the issue of guilt, and the other, the issue of sanity.

It has also been proposed that there be impartial experts, not selected by either side, in both civil and criminal cases. I do not now offer any opinion as to the merits of these proposals. They can be separately considered, but I refer to them now because their origin is to be found in the intense dissatisfaction or, if you will, misunderstanding as to the character of medical testimony given day by day in our busy courts.

I think we might well admit, both as doctors and as lawyers that, rightly or wrongly, that portion of our work that deals with medical testimony is not approved by the public. In fact, I suspect that it never was. We have only this solace—that rarely in any era did the public ever approve of the courts one hundred per cent. Whatever confidence Americans have in their judicial tribunals, yet, to the extent that they yield to the human impulse to find fault with their elders and betters, they have at least indicated some disapproval in connection with the work for which we, as lawyers and doctors, are jointly responsible.

Let me make one more reflection on our joint labors. It is true that

criminal cases, involving issues of insanity in which there are actual trials, are few and far between, but these are the most spectacular of all litigated cases. These trials attract the elite of the Fourth Estate and for these cases there is preëmpted, except in the event of war or of earthquake, a first call on all space up to the actual exclusion of department store advertising. A mere handful of these cases causes the public to sniff at both of us. Few of us in either profession have been concerned with these things, but the net result has not been for our good nor have we left the public and the gentlemen of the press with anything but a distorted picture of our joint efforts.

The Thaw case, a few may be old enough to remember, left a lasting bad taste on the battle of experts. In more recent years, an inquiry as to sentence on pleas of guilty in a murder case, the Leopold and Loeb case, attracted nation-wide attention, and the experts were held up to derisive discussion because, supposedly, of a difference of opinion on their part, but actually, I think, because of differences of opinion on the part of the public as to what disposition the court should have made in pronouncing judgment.

While there is a basis for public dissatisfaction because of cases of this character, it must be remembered that the incentive to public interest comes primarily from a morbid interest on its part, partly a love for lurid detail, and partly an expression of a mob's sadistic desire to wreak vengeance upon the unpopular perpetrator of a revolting or unapproved murder.

There was a time when an expert, particularly a physician or surgeon, had a status, and a very respectable one, in the courts. One may go back to the 14th Century, when a judge who wanted medical advice would call a physician for whom he had a high regard and whose advice and opinion he accepted on a fundamental issue of the case.

But, over a century and a half ago we reached the point where it was possible for a judge to tell the House of Lords: "Hardly any weight is to be given to the evidence of what are called scientific witnesses."

That tune continued to be played for a few generations, but I think it may safely be said now that, on the whole, medical and other expert scientific testimony is given a fair chance in our courts with a minimum of judicial derision and is even occasionally relied on in our appellate courts in finding a basis for sustaining or reversing a judgment.

I realize that, when a wealthy family finds that one of its members is

charged with murder, or some other criminal offense, there is the temptation to hire experts in a desperate attempt to ward off what would otherwise be the inevitable.

Doubtless, too, that situation presents itself to the less fortunate. And, within the limits of the family purse, there are those who, in the medical profession, lightly lend themselves to giving opinions that fit the case for a stipulated fee.

Personally, my observation leads me to conclude that in this type of case the respectable mental expert does not sell himself as lightly as that. To anyone acquainted, as doctor or lawyer, with the subject of psychiatry, the broad area of honest disagreement is so evident in a mass of border-line cases that it is not surprising that experts differ in these cases, with the result that there is what has sadly been referred to as the battle of experts.

All this is complicated, too, by the confusion of uncertainty that arises out of what have been called metaphysical considerations in determining criminal responsibility by the use of the word "responsibility," itself, and the further use of the standard given to us in McNaughton's case of the ability to distinguish right from wrong.

We have debated this test in legal circles, and it has been debated, too, as I know, in medical societies. But, in this state at least, we have never budged an inch. To criticize the doctor under these circumstances, because he differs with his colleagues when the courts are committed to the extent of this enormous area of medical choice is really pushing the thing too far. To charge him, because of this, with selling his opinion, is most unfair.

And, yet, frankness requires me to say that in my own experience, I have listened to startling testimony on the part of at least two most eminent psychiatrists, fanciful and puerile in their tests and their reasoning, and both on the side of the "big money." And I may add, too, that I was well acquainted with the writings of one of them, and not simply for purposes of the trial. I had no difficulty in recognizing that he had woefully departed from reliance on the learning which he had passed on to me in the printed page.

Nevertheless, I will say again that, generally speaking, I believe that the specialist in mental cases, of good professional standing, will not even for a substantial fee testify to what he cannot conscientiously support. If nothing else, he values the good opinion and the good-will of

his scientific fellows. Primarily, however, it is because, fundamentally, he is an honest man.

I want to refer to my observation that doctors do not always like lawyers and the courts. I have tried to find out why. I cannot say that I blame them, but I do believe that if they made an effort and attempted to understand us, they would have fewer difficulties and fewer grievances. I may say, too, that the doctor who has a substantial experience with the courts finds less fault than do those whose judicial contacts are less frequent.

The conscientious, hard-working physician hates nothing worse, unless it be the loss of a patient's life, than the service of a subpoena. To him it means disruption of the routine of his practice, no matter what the need of patients who depend on him and his soothing presence. He usually must attend when it is most inconvenient and disturbing. But all doctors should be advised by their medical societies, and for that matter when they are being taught medical jurisprudence at school, that the doctor is the most favored of witnesses, even by opposing counsel, and usually by the court as well.

Rarely do lawyers and judges, if informed, compel him to wait. If he will ask for it, it can always be arranged that he be notified by telephone when he is about to be reached; and it happens time and again, when he comes to court in great distress, that he will be taken out of his regular order, heard, disposed of, and bundled off, to continue his good work of healing, medicating and cheering those who so greatly depend upon him.

The average medical witness dislikes a cross-examination that questions the correctness of his observations and the soundness of his opinions. To him, whose word is respectfully listened to in the sick room, it is a humiliation that a lawyer, who supposedly is nothing but an ignorant layman, should dare to take such an attitude.

When the inexperienced medical witness exhibits such a reaction, he is not very helpful. Just as the lawyer who is discourteous to the doctor in the court room loses the good-will of the jury, so, too, does the doctor fall in esteem when he is irritable, ill-tempered, uppish or opinionated.

The experienced medical witness makes no such mistake. He knows his advantage if he is denied the respect due to his position. He knows, too, that a cross-examination which is unsound carries within itself its

own undoing. And, furthermore, he knows that the cross-examiner is not infrequently trained in this specialized type of work, has a sufficient accumulation of medical information to be able to conduct an examination intelligently and helpfully and probably is aided and guided by a physician who has studied the case and has competently advised the lawyer.

In that connection, I might say that, notwithstanding the fact that many doctors think they have forgotten more than the lawyer will ever know, they often make a serious blunder. There are many aspects of medicine with which many a physician is not thoroughly acquainted because such matters come within his ken only on rare occasions and because, too, he has not had as much schooling at the moment as the lawyer who examines him.

For such situations, I can only make this suggestion, and I think it should be observed in all cases when a doctor testifies. First, he should fully refresh his recollection concerning all of the facts observed by him, and then fully reflect on their significance medically; and then, too, take the pains to refer to a text here and there, as an additional help in sustaining his opinion in his mind, at least, and giving strength to a worthy cause. Juries do not always accept a doctor's utterances on an *ipse dixit* theory.

Now, there is another cause of irritation on the part of the experienced physician and that is the derision that greets his use of scientific words. Again, experience avoids that difficulty. The neophyte medical witness should remember that there are jurors who do not even understand the meaning of arteriosclerosis; that a thrombosis has about as much significance as a binary star, and that only a small fraction of them have ever heard the word "edema." They do not, in fact, know whether "sternum" is a heater or a breast-bone.

To avoid court room titters, I suggest that plain English be used first, and the scientific term, if really necessary, be used later. The jury will be so appreciative!

If the doctor will only ask the lawyer who calls him, and frankly confess his inexperience, the lawyer will be in a position, in good conscience, to be of service, and the expeditious judge, who presides over the trial, too, will be most grateful.

There is another thing that doctors dislike in our courts, and that is the hypothetical question. We can hardly blame them. The patient

presented in the question is an unreal person. The recital from the doctor's viewpoint is incomplete and unreal, even when he participates in the preparation of the question. The doctor frequently objects to the requirement of a categorical "yes" or "no" answer, but wants to say more, and a lawyer will frequently shut him off with an objection.

Annoying and unsound as the hypothetical question is, it is the best the courts have been able to work out so far, and if the doctor is patient, and if there is a competent lawyer present in court, he will have an opportunity to explain fully his views, his reasons, and why he cannot scientifically and conscientiously answer "yes" or "no" in full truth. Judges always give people an opportunity to explain under such conditions even when they are not doctors.

I have observed that it frequently happens that defendants whose cases are conducted by insurance companies do not call medical witnesses. The reason, as I have found out, is that the company usually employs medical examiners who make reports. Because most of their cases are settled, it is desirable that the report be truthful and accurate. When the plaintiff's physician testifies to something in which the defendant's expert and medical investigator concurs, there is no point in the defendant's calling him and usually he is not called. In other words, medical testimony is not always disputed. This observation is confirmed by a statement made of record by an attorney for insurance companies concerning medical experts employed by plaintiffs, and as I would rather think well than ill of any group, I find the statement heartening and cheering.

I think I have given enough unsolicited advice and, I think, too, that I have expressed gratuitously enough opinions for the guidance of the members of another profession which is said to be almost as old as ours.

I shall presume no further, except to bespeak from both an interest in increasing numbers in the problems in the field of legal medicine which concern both, and a coöperation for improvement in the administration of justice in which the medical interest is at least as welcome and as useful as ours.

THE DOCTOR IN COURT*

CHAS. GORDON HEYD

Professor of Surgery, New York Post-Graduate Medical School, Columbia University

"The constant and perpetual willingness to render each one his right."

FROM time immemorial the medical and legal professions have evolved along parallel lines. They arose in the dim past and each has had a distinguished history. Both were derived from the religious background of the Temple and probably had their first proponents as a doctor-priest and lawyer-priest. Simultaneously with the evolution of law and medicine, society progressed and civilization and culture became established in varying degrees in place and time. It may be said that the relative value of any period of civilization could be appraised by the character and development of these twin professions. Both medicine and law have been influenced, modified and changed by their social and political environment and today both stand an equal chance of being absorbed by the bureaucracy of government and liquidated as individualistic professions of public service.

It is an arresting fact that the study of law and medicine became formalized in Italy into an university status—law having its renaissance in the early part of the 12th century at Bologna and medicine at approximately the same time at Salerno. In the 820 years that have elapsed since the first university degree for lawyers and doctors was established, civilization has advanced and social relations have become so complicated that there has been evolved an extensive framework of laws, formulated and applied by professional experts.[1] It was inevitable that there should be a free intercourse in the development of legal procedures between the lawyers and the doctors, "for as long as litigants are represented in the court by trained lawyers insistence will be upon the rule of the law."[2] It would appear obvious that as long as patients are under the care of trained physicians there will be a legal insistence upon the use of scientific medicine, and as a corollary the law will recognize that

* Presented February 25, 1941 in the symposium conducted by the Association of the Bar of the City of New York in connection with The New York Academy of Medicine and the Medical Society of the County of New York.

only experts can qualify and testify upon that which is medically scientific, and in consonance with the general level of modern medical practice.

A medical expert should be able to put the subject matter of his testimony as an expert in the form of a scientific essay, which, theoretically, he could present before any medical society. At the present time I have great doubts whether most of the experts would have the courage to do this and there are very few medical societies that would receive such a presentation.

The doctor, in the discharge of his professional duties, calls upon or receives his patients, asks questions, receives courteous replies and prescribes treatment by giving orders.[3] The physician looks upon disease as a bodily disorder characterized by a lack of proper physiological function or a cellular disharmony and he attempts to reëstablish orderly sequence of function. In brief, he applies a system of therapeusis to restore physical order. Subconsciously, the physician looks at the law as a system of legal therapeusis applied to a disordered society. In court, however, he finds himself placed in the witness box, takes orders not always courteous and is instructed to give categorical answers—"yes or no!"[4] Instinctively, he feels that the court does not produce a harmonious remedy for social disabilities. Rightly or wrongly, he perhaps is disappointed or even grieved that his experience in court makes him believe that the application of the law is not a process of systematic or scientific social therapeusis but rather a compromise which permits the social body to function with many obvious maladjustments even though the essential cause of action is met by a relatively fair application of justice.

Medicine furthermore is not an exact or a finished science. It has none of the finality of geometry or calculus. In fact, the science of medicine will never be complete. Medicine is like an organism in having a growth, and must, in the nature of things, show variations with the progress of time, otherwise there would be no necessity for further research or investigation. The great biological essential for further progress in law and in medicine is for time and practice to evolve by normal growth, by trial and error, the logical development of both sciences. It would be a great detriment to society if in our zeal for reform we should cancel 800 years of social experience for the mere sake of change. Such unnatural haste might well delay further scientific development

of the legal mind and impair the social consciousness of the community just as certainly as it would bar additional contributions to science and medicine. A system of law or medicine completely dominated and administered by government would likewise produce the same devastating result.

The economic situation[5] that faces the legal profession is certainly worse than that which besets the medical profession. In every age and in every cultural order, the doctor has existed and maintained himself in spite of war, catastrophes and revolution. He lived and practiced his art during the decline and fall, or even the complete annihilation of previously existing states of civilization. From remote times the doctor has enjoyed complete professional freedom and has thereby assumed great social responsibility. In Russia the medical profession as such has survived even under a totalitarian government, although as a completely socialized system of medical practice.[6]

The doctor is part of the complex machinery of society and in his social obligations he is essentially a part of the government and his professional career many times brings him into intimate contact with the law. There are four ways in which the physician as a doctor appears in court: (1) as a plaintiff, as when he sues for non-payment for his professional services. In this particular role he may first have to defend a suit for malpractice before the way is clear for him to attempt to have legal settlement of an indebtedness due him; (2) as a defendant in malpractice action; (3) as a witness of fact; (4) as a medical expert witness.

The doctor as a witness of fact enjoys no more privileges than any witness of fact, and he is ordinarily required to give a frank statement without opinion as to what has come to his personal knowledge by contact with the patient. In most of the States, however, the doctor is subjected to "chiselling" by the plaintiff's lawyer from the practice that, as a witness of fact, the doctor is forced to become an opinion witness and is under the necessity of answering as a witness under the ordinary subpoena and does not receive remuneration for opinion testimony. In the State of New York, however, it is the practice that physicians may not be called upon to give opinions or to exercise the function of an expert without an agreement for compensation above the statutory fee for an ordinary witness. It is held by the New York Courts that a physician's knowledge is part of his occupation which no litigant has a right to use without proper compensation.[3]

Expert testimony and medical experts have been so thoroughly censured that when I attempt to defend the institution rather than the method I feel that I unconsciously become the representative of the great brood of experts. The way of a medical expert witness and the use of the hypothetical question is the via dolorosa for the doctor in court. Great has been the agitation and many have been the proposed reforms and practically every anathema and every form and type of vituperation have been evoked and hurled at the physician when he assumes the function of an expert. The expert, however, is permitted to express his opinion with respect to questions of science for it is held that the opinion of such persons who are especially skilled in such matters is a relative fact in the action.[7]

A story is told of a very prominent surgeon who had attained quite a reputation as an expert witness in negligence cases. He was glib of tongue and habitually exhibited an undue appreciation of his own value as a witness. On one occasion he was approached by a lawyer who anticipated bringing suit against a big corporation for alleged negligence. The doctor was asked if he would testify on behalf of the plaintiff. He said he would appear in court but he was too busy to go to the lawyer's office for rehearsals!

Learned Hand[8] believes that the expert is an anomaly and, being a legal anomaly, serious practical difficulties arise; for "there can be no legal anomaly which does not work evil, because of forming an illogical precedent, it becomes the mother of other anomalies and breeds chaos in theory and finally in litigation." The chief objection of Judge Hand against expert testimony is that the expert becomes the hired champion of one side and is subject to examination, cross examination and contradiction by other experts. To obviate these objections the learned jurist recommends a "Board of Experts" and/or "a single expert," not called by either side, who shall advise the jury. Other suggestions have been made in regard to the question of expert testimony. These recommendations concern themselves with the mechanism or the technique of obtaining expert testimony but do not discuss the primary and essential need for expert testimony per se.

It has been suggested that the judge be allowed to call his own expert. This would seem to be a rather dubious procedure, for the doctor most intimate and confidentially close to the judge would probably be his family physician, who may or may not be a medical expert. The

second suggestion is that a panel of experts be created and from this panel either side and the court could select one, two or a reasonable number of experts for the purpose of testifying. This procedure is also of very doubtful value for it would create such a desire upon the more unethical members of the profession who, in the hopes of advertising or remuneration, would always be desirous of being placed on the panel. Such a panel would be open to all manner of political skullduggery and the panel would eventually arrogate to itself certain privileges and constitute in essence an extra-judicial body.

When we review the rules surrounding medical expert testimony together with the leniency of the court in regard to qualifying as an expert, it is apparent that almost any egotistically inclined physician may qualify as an expert. Furthermore, the expert is retained by either side and to that extent becomes a partisan in the final determination of the case. It would appear that the main defect of the expert medical witness in our courts is not that he is a medical expert witness but is our inability to be sure that he has special skill, knowledge and character. The point I wish to make is that our approach to the problem is not that the institution of the medical expert is fundamentally noxious or bad but at the present time there is no adequate mechanism for determining the competency of the expert as an expert. It would appear that in the solution of this difficulty lies the future of the medical expert testimony. The Court of Appeals in the case of Szold vs. Outlet Embroidery Company (274 N.Y. 271) unanimously upheld the position which prohibited the medical expert from recovering his fee for services rendered to an injured employee under the Workmen's Compensation Law until the doctor rendering the services had established his qualifications with the Workmen's Compensation Board conducted by the Medical Society of the State of New York. The Court of Appeals accepted the principle that the professional qualifications of a doctor may be established by the organized medical profession in a Workmen's Compensation case. This decision, undisturbed by the United States Supreme Court (March 1938), established a precedent for panels of experts whose qualifications have been established and approved by organized medicine.[9]

If we apply the principle formulated by this decision to the entire domain of medical expert testimony we have the mechanism for determining the character and competency of experts by non-governmental

bodies but within the framework of organized medicine.

There are today fourteen special certifying boards working in collaboration with the Council on Medical Education and Hospitals of the American Medical Association. For example, the American Board of Surgery is a non-governmental agency, set up by various units of the medical profession where, by examination applicants are certified as to their competency in surgery. There are similar boards in medicine, in urology, in orthopedics, in psychiatry and neurosurgery, etc. Is it asking too much of any physician who offers testimony as a medical expert to be certified as to his qualifications in the special field in which he proposes to give his opinion?

There is a peculiar and devastating nomenclature about medical language that is difficult to translate into ordinary every day commonplace speech. While the doctor may use terms and words which convey a very definite meaning to his professional colleagues yet each individual expert will translate the same technical terms into a slightly different form of word and phrase of common language. In 1923 a patient engaged a surgeon to remove a tumor arising in the scar following an operation for appendicitis. The tumor was removed and the pathologist, a physician of great competency, reported that the tumor was a "fibroid tissue tumor with sarcomatous elements." The phrase "with sarcomatous elements" is definitely a diagnosis of one form of cancer. The patient was informed that the microscopical examination proved to be a "fibroid tissue tumor." The supplemental phrase "with sarcomatous elements" was withheld from the patient but conveyed to his father. About three years later the patient applied to an insurance company for a non-cancellable health and indemnity policy. He informed the company that he had been operated upon for a "fibroid tissue tumor," was duly examined by the company's physician, and accepted. For ten years he paid the annual premiums. The company then cancelled his policy because they claimed the insured had suppressed an essential statement: "with sarcomatous elements" in his application. The patient sued the company to reinstate his policy. At the trial a prolonged controversy ensued as to the nature of "fibrous tissue tumors" and "sarcomatous elements." The attorney for the defendant added more complications by introducing an obsolete term called "desmoid" and seeking to buttress his position by an appeal to the "authority of a textbook." Five different experts were unable to explain to the jury in plain simple language just

what this tumor represented. Later, objectively viewing the testimony of the experts there was very little difference in the pattern of their testimony and all were in accord with the simple facts. If the tumor were a "fibroid tissue tumor," it was not cancer: if it were a sarcoma–cancer–the patient was cured. The jury found for the plaintiff. I have a definite impression that the effect of the experts' testimony is not always as impressive as some of our lawyers and doctors are inclined to believe. Twelve tried and true members of the community, sitting as a jury, will somehow arrive at a startling approximation of the truth regardless of the "scientific jargon" and controversies of the experts.

I wonder if it is always a good thing for society to have only experts. There are so many limitations to the expert in that his knowledge becomes so refined and his approach so circumscribed that he is very apt to have lost common touch with actual conditions. Is there not some reserve upon the part of the majority of persons against having experts determine everything for them? Is there not a sense of greater satisfaction to believe that ordinarily a jury will somehow approximate justice and fairness in their verdict? Certainly, it is true that technical facts can always be brought within the range of the intelligence of the jury.

The most outstanding question in the background of the medical expert is the relationship he bears to his profession. Few physicians reach positions of prominence in our hospitals without having professional merit and character, and as the truth of any individual's testimony is determined by his inherent honesty so the value of an expert's testimony is predicated upon the ethical relationship he bears to his profession. Therefore, medicine shares with the law the responsibility for guarding a great treasure–the ethical conduct of its practitioners.

The hypothetical question I am unable to discuss as it represents a terra incognita and I cannot offer anything to the extraordinary, voluminous literature that surrounds this question. I may, however, in passing make my salutations to this vexing question by recalling that I have read that the longest hypothetical question ever asked contained over 20,000 words and was submitted to Dr. Jelly of Boston, an expert on insanity. The question was propounded in the famous Tuckerman will case in Suffolk Probate Court. It concerned the testator's mental condition and required over three hours to propound. The answer of Dr. Jelly was startling! It was just three words: "I don't know."[10]

There is considerable misapprehension in the minds of the laity, no

less than the medical profession, that medical expert witnesses receive huge fees. I am led to believe, both from my own personal experience and from conversation with other members of the profession, that the remuneration is on the whole inadequate.

One of the most interesting stories associated with the remuneration of an expert is that which concerns the late Professor Henry Rowland. Some years ago an electrical concern in Buffalo engaged the Doctor, then Professor of Physics at Johns Hopkins University. Later on when the case had been finally disposed of there arose a disagreement about the fee for Professor Rowland's services. Subsequently he sued the company for $10,000 for his services as an expert. The electrical company was represented by the late Joseph H. Choate. Mr. Choate's first question to the Professor was "Dr. Rowland, in your opinion who is the greatest physicist in America?" Without the slightest hesitation, Rowland replied "I am." Considerably later, Dr. Gilman, then President of Johns Hopkins University, playfully took Rowland to task for his lack of modesty on the witness stand. Rowland intimated to Gilman that he had failed to take into consideration the nature of his oath; that Rowland was to "tell the truth, the whole truth and nothing but the truth."

The value of the medical expert is, in the final analysis, determined by the character of men in medicine and in law, by their training and experience, by their certification by competent public bodies, by the social consciousness of the individual and by inherent traits of intellectual and personal honor. There will always be mendacious practitioners of law and medicine. Fundamental traits of character will not be changed overnight and I doubt if any lasting changes will be made or present procedure be greatly modified by hasty attempts at alleged reform. All social progress is based upon evolution and time is the element that brings the greatest benefit and acceleration to this process.

"Yet I doubt not thro' the ages one increasing purpose runs.
And the thoughts of men are widened with the process of the suns."

Doctor Johnson asserted that "law is the science in which the greatest powers of the understanding are applied to the greatest number of facts" and "is the last result of human understanding acting upon human experience for the benefit of the public." I like to think of the law as I like to think of medicine, as permanent monuments to our civilization, as cathedrals of the human mind, exhibiting the best of all social progress through the centuries.

A few years ago I had occasion to visit the Cathedral at Chartres. It was in the late afternoon and the slowly descending sun illuminated the western skies with all the glowing colors of the spectrum. I seated myself in a sequestered niche and observed the mosaic of changing patterns as the diminishing light came through the celebrated Thirteenth Century windows. I was moved to reflect upon the vicissitudes of human affairs and of the common pact of society, a contract between the dead and the living, and those yet to be born. Seven hundred years were spent in the erection of this edifice and all of the members of the living society contributed to its creation, the banker, the money lender, the butcher, the baker, the humble dweller and the peasant. The work was apportioned according to the talents of the various contributors. It became an emblem and a symbol of the immortal spirit of humanity, it represented the continuity of life, its mutations, its physical and spiritual endeavors. It was at the same time, the glory and reverence of those that built it and those that used it. It was in fact the thread and imponderable spirit of a continuous force of the sublime aspirations of mankind. The individual contribution of each member of the community varied. Their talents were widely separate and disparate, their abilities uneven and their economic condition unequal. The whole edifice perished if the living violated their contract with the dead, yet each viewed the same monument with two eyes, saw the same thing and responded with the same spiritual evocations. They renewed their pledge and in doing so fulfilled the diurnal prayer of their lives. They became the continuous spirituality of an undefined soul. They recreated their hope and gave life to their inspiration. They were part of all that had been!

"Forerun thy peers, thy time, and let
Thy feet, millenniums hence be set
In midst of knowledge, dreamt not yet."

REFERENCES

1. *The legacy of the Middle Ages:* ed. by C. G. Crump and E. F. Jacob. London, Oxford Univ. Press, 1938.
2. Zane, J. M. *The story of law.* Garden City, N. Y., Garden City Pub. Co., 1927.
3. Carothers, R. The physician in court, *South. M. J.*, 1937, *30*:906.
4. O'Dunne, E. The medical man on the witness stand, *Am. J. M. Jurisprudence* 1938, *1*:1.
5. Heyd, C. G. *Medicine, the law and the state.* Private publication, *in press.*
6. Heyd, C. G. Some social and medical impressions of Moscow, *Am. J. Digest. Dis.*, 1935-36, *2*:686.
7. Stryker, L. P. *Courts and doctors.* New York, Macmillan, 1932, p. 135.
8. Hand, L. Historical and practical considerations regarding expert testimony, *Harvard Law Rev.*, 1901-02, *15*:40.
9. Szold vs. Outlet Embroidery Co. Inc. *(274 N. Y., 271).*
10. O'Dunne, E. Medical experts as witnesses, *Am. J. Surg.*, 1938, *42*:501.

LIBRARY NOTES

AN EXHIBITION OF BOOKS ON THE DISCOVERY OF VACCINATION, ITS EARLY ADVOCATES AND OPPONENTS

Prepared by

GERTRUDE L. ANNAN
In Charge of the Rare Book and History Rooms

The volumes shown in this exhibition were selected from those on the shelves of the Academy Library. No attempt has been made to procure from other sources books which the Library does not possess. Thus, there are works not listed here which would obviously have been included in a selective bibliography. Only writings appearing during Jenner's lifetime have been considered, as limited space precluded any complete display of later publications.

Works by Edward Jenner

Jenner, Edward. 1749-1823.
An inquiry into the causes and effects of the variolae vaccinae, a disease discovered in some of the western counties of England . . . and known by the name of the cow pox . . .
London: printed, for the author . . . 1798.
First edition of the author's work describing his discovery.

Jenner, Edward. 1749-1823.
An inquiry into the causes . . .
2. ed. London: printed for the author . . . 1800, opened at pl. opp. p. 30.
Showing the hand of the dairymaid, Sarah Nelme, who was infected with the cow pox in May, 1796.

Jenner, Edward. 1749-1823.
An inquiry into the causes . . .
3. ed. London: printed for the author . . . 1801, opened at pl. opp. p. 34.
Showing the arm of a five year old boy, inoculated March 16, 1798.

Jenner, Edward. 1749-1823.
Further observations on the variolae vaccinae, or cow pox . . .
London: printed for the author . . .1799.
This work was written, "to communicate such facts as have since occurred, and to point out the fallacious sources from whence a disease imitative of the true variolae vaccinae might arise, with the view of preventing those who may inoculate, from producing a spurious disease . . ."

Jenner, Edward. 1749-1823.
A continuation of facts and observations relative to the variolae vaccinae, or cow pox . . .
London: printed, for the author . . . 1800, opened at p. 6.
Jenner announces with satisfaction, "I have the pleasure too of seeing that the feeble efforts of a few individuals to depreciate the new practice, are sinking fast into contempt beneath the immense mass of evidence which has risen up in support

of it." He adds that, "upwards of six thousand persons have now been inoculated with the virus of cow pox, and the far greater part of them have since been inoculated with that of small pox, and exposed to its infection in every rational way that could be devised, without effect."

Jenner, Edward. 1749-1823.

The origin of the vaccine inoculation . . . London: printed by D. N. Shury . . . 1801.

"I am induced to give the following concise history of the origin of vaccine inoculation, from my frequently observing that those who only consider the subject cursorily, confound the casual cow pox with the disease when excited by inoculation."

Jenner, Edward. 1749-1823.

Extract of a letter . . . dated London, February 24, 1802.

[London?, 1802.]

This contains "instructions for vaccine inoculation," with the warning: "The most arduous task I have had to perform, has been making practitioners sensible of the absolute necessity of attending to the *quality* of the virus employed . . ."

Jenner, Edward. 1749-1823.

[On modifications of the vaccine vesicle]. In: *Medical and physical journal,* London, 1804, vol. 12, p. [97].

In this letter to the editor, Jenner explains that "herpetic affections which so frequently appear among the children of the poor . . . often prevent the vaccine virus from producing its correct action." He believes this to be "the chief source of those failures, which many practitioners have witnessed in inoculating for the small-pox." This paper was later published separately.

Jenner, Edward. 1749-1823.

Facts, for the most part unobserved, or not duly noticed, respecting variolous contagion . . .

London: printed by S. Gosnell . . . 1808; reprinted without alteration, 1811, opened at p. [3].

"In my second and third treatises on the vaccine disease I endeavoured to call the attention of my readers to some physiological facts respecting the nature of the small-pox infection . . . as the publications . . . have been for some time out of print; and as the subject is by no means generally understood, I shall now make such extracts from them relating to this matter as I conceive may prove useful, and add some further observations . . ."

Jenner, Edward. 1749-1823.

Letter . . . to William Dillwyn, Esq. on the effects of vaccination . . .

[Philadelphia]: published by the Philadelphia Vaccine Society . . . 1818, opened at p. [2].

The publishers state that this "communication was made in answer to the enquiry of one of our fellow citizens, who was desirous of knowing Dr. Jenner's opinion of his truly interesting discovery, after it had stood the test of twenty years' experience. The friends of humanity will, no doubt, be highly gratified by this additional confirmation of the security to be obtained against the ravages of the small-pox . . ."

Jenner, Edward. 1749-1823.

Circular letter to the profession.

In: *Medico-chirurgical review,* London, 1821, vol. 1 for 1820, p. 780.

A request to other physicians, asking them if the observations acquired in their practice coincided with those he had described in his earlier works.

Jenner, Edward. 1749-1823.

[Facsimile of an autograph letter addressed to Sir Richard Phillips].

Cheltenham, January 16, 1807.

In writing of the investigation of vaccination being carried on by the Royal College of Physicians, he says: "This inquiry will lay all those troublesome ghosts which have so long haunted the metropolis with their *ox-faces,* & dismal hootings against vaccination . . . you may depend upon it, the new investigation will prove the touchstone of the vaccine discovery."

Jenner, Edward. 1749-1823.

[Autograph letter addressed to William Clement, surgeon, of Shrewsbury, September 4th, 1811.]

Cheltenham, September 4th, 1811.

"It is now my wish to collect as many cases of secondary smallpox as I can find by application to my medical friends. There are people in the world so absurd

as to suppose that cases of smallpox never occur either after inoculation or the disease taken in the ordinary way. To convince them to what an extent this has happened, is the purpose of an intended publication . . ."

ENGLISH WORKS IN FAVOR OF VACCINATION, PUBLISHED DURING JENNER'S LIFETIME

Pearson, George. 1751-1828.

An inquiry concerning the history of the cowpox, principally with a view to supersede and extinguish the small-pox . . .

London: printed for J. Johnson . . . 1798.

The author was one of the first to recognize the value of Jenner's discovery and to experiment on a large scale. Subsequently, through his efforts a vaccine institution was founded. This led to trouble with Jenner who was offered merely the post of extra corresponding physician, and who felt that Pearson was claiming a large part of the credit for the new discovery.

Woodville, William. 1752-1805.

Reports of a series of inoculations for the variolae vaccinae, or cow-pox . . .

London: printed and sold by James Phillips and Son . . . 1799.

Like Pearson, Woodville, physician to the Small-pox and Inoculation Hospital, was quick to realize the importance of vaccination.

Testimonial in favour of vaccine inoculation.

In: *London medical review*, 1800, vol. 4, p. 90.

Signed by thirty-six eminent physicians and surgeons of London, this testifies that the signers believe it to be their duty to state their opinion, "that those persons who have had the cow-pox are perfectly secure from the infection of the small-pox, provided this infection has not been previously communicated." They state further that "the inoculated cow-pox is a much milder and safer disease than the inoculated small-pox."

Ring, John. 1752-1821.

A treatise on the cow-pox; containing the history of vaccine inoculation . . .

London: printed at the Philanthropic Reform . . . 1801-3.

One of a number of works by the author advocating vaccination. It contains a careful summary of previously published accounts of experiments made and conclusions drawn, by English and foreign physicians.

Lettsom, John Coakley. 1744-1815.

Observations on the cow-pock . . .

[London]: printed by Nichols & Son . . . 1801, opened at pl. opp. p. 3.

The celebrated physician, Dr. Lettsom, was a warm advocate of vaccination. The plate shows a silhouette of Jenner.

Great Britain. Parliament. House of Commons.

Report from the Committee on Dr. Jenner's petition, respecting his discovery of vaccine inoculation. Ordered to be printed 6th May 1802.

[London?, 1802].

"What his gains might probably have been, if he had been solicitous to keep the secret within his own practice . . . may be collected from the testimonies . . . in which no more than justice is done to the liberality and public spirit of the petitioner, in pursuing the propagation and extension of this important discovery, and in rendering it rather of universal utility . . . than of emolument to himself."

This copy with Jenner's signature was presented by him to Dr. Lettsom and from him it came to Dr. Samuel L. Mitchill of New York.

Bloomfield, Robert. 1766-1823.

Good tidings; or, news from the farm. A poem . . .

London: printed for Vernor and Hood . . . 1804, opened at pp. 18-19.

This tribute to vaccination, was written by the shoemaker-poet:

"When the plain truth tradition seem'd to know,
And simply pointed to the harmless cow,
Doubt and distrust to reason might appeal;
But, when hope triumph'd, what did Jenner feel! . . .
Appear'd the gift that conquers as it goes:
The dairy's boast, the simple, saving rose!

Momentous triumph—fiend! Thy reign is o'er;
Thou, whose blind rage hath ravag'd ev'ry shore."

Bloomfield, pp. 28-29, praises vaccination for preserving beauty from the ravages of smallpox:

"And is it then no conquest to insure
Our lilies spotless and our roses pure?
Is it no triumph that the lovely face
Inherits every line of nature's grace?
That the sweet precincts of the laughing eye
Dread no rude scars, no foul deformity?"

Willan, Robert. 1757-1812.

On vaccine inoculation . . .

London: printed for Richard Phillips . . . 1806, opened at pl. II.

The distinguished dermatologist writes in his dedication, "I have endeavoured in the present publication, to rectify some mistakes made by the first inoculators, to remove several misconceptions, and to render the practice of vaccination, more accurate and more secure."

Debates in Parliament respecting the Jennerian discovery, . . . together with the report of the Royal College of Physicians of London on the vaccine inoculation . . .

London: printed by W. Phillips . . . 1808, opened at pp. 140-141.

The investigation of vaccination by the Royal College of Physicians was undertaken at the command of the King, in compliance with an address from the House of Commons. The pages displayed show some of the reasons for the College's support of the new practice.

Worgan, John Dawes. 1791-1809.

Select poems . . .

London: printed for Longman, Hurst, Rees, and Orme . . . 1810, opened at p. 205.

This young poet was tutor to Jenner's children. The verses shown are part of a poem entitled, "An address to the Royal Jennerian Society . . . on their anniversary festival, May 17th, 1808."

"'Tis thine, blest Jenner, with auspicious hand,
To chase one demon from the trembling land,—
Avert the fainting babe's impending doom,
And rescue nations from the yawning tomb."

Carrick-Moore, James. 1762-1860.

The history and practice of vaccination . . .

London: printed for J. Callow . . . 1817, opened at p. 300.

The author served as Director of the National Vaccine Establishment after Jenner resigned in 1809. The conclusion of this early history of vaccination notes that "this is for the consideration of legislators, who . . . might in a very short time totally extinguish the small pox," and ends with the lines, "The discovery of Jenner; whose name, or, in strange tongues, a sound imitating his name, is now articulated through the world, in huts, houses, and palaces, a household word."

English Works Opposing Vaccination, Published in Jenner's Lifetime

Moseley, Benjamin. 1742-1819.

Medical tracts. I. On sugar. II. On the cow-pox . . .

2. ed. with considerable additions. London: printed by John Nichols . . . MDCCC, opened at p. 180.

First published in 1799, this tract came from the pen of one of the foremost opponents of vaccination. He writes: "Great events are foreboded.—Some pretend that a restive greasy-heeled horse will kick down all the old gally-pots of Galen.—Others, that the people of England are becoming like the inhabitants of a wilderness . . . seen in 1333, by . . . Sir John Mandeville,—who, he says, were "wild, with horns on their heads, very hideous and speak not; but rout as swine.'"

A new song, to the tune "And a begging we will go." Inscribed to the great Dr. Jenner.

[London?, 180?].

"Minitt, the cowleech . . . instructor of Jenner on the cow-pox . . ." is quoted:

"I minds my cows and horses, I tells you all I know,
You writes a book about it, you speaks of horse and cow,

While a begging you do go . . .
How comes it Maister Jenner, that you're
doctor call'd,
When you kept shop at Berkeley, and me
horse med'cines sold,
Ere a begging you did go."

Lipscomb, George. 1773-1846.

A dissertation on the failure and mischiefs of the disease called the cow-pox: in which the principal arguments adduced in favour of vaccination . . . are examined, and confuted . . .

London: printed for George Robinson . . . 1805.

The distinguished historian, surgeon and physician concludes his observations with the statement that "vaccination ought to be immediately, and for ever, abandoned."

Rowley, William. 1742-1806.

Cow-pox inoculation no security against small-pox infection . . . to which are added, the modes of treating the beastly new diseases produced from cow pox . . .

3. ed. London: printed, for the author . . . 1806, opened at pl. opp. p. [v].

A tirade against vaccination showing a plate entitled, "cow poxed, oxfaced boy."

Stuart, Ferdinand Smyth. fl. ca. 1800.

£30,000 for the cow-pox! ! ! An address . . . to the British Parliament, on vaccination . . . wherein the report of the College of Physicians is completely confuted . . .

2. ed. . . . London: sold by Hatchard . . . 1807, opened at pl. opp. p. 61.

The author, a physician of Billericay, Essex, claims to have practised for thirty-five years, as well as serving as a Major in the army. The plate is the familiar illustration showing babies being shoveled into a monster's mouth while the opposers of vaccination stand in the background, their swords drawn in their fight for truth. Stuart, who lost his infant son through vaccination, describes the fate of a child who, having been vaccinated, "ran upon all fours like a beast, bellowing like a cow, and butting with its head like a bull."

Moseley, Benjamin. 1742-1819.

An Oliver for a Rowland: or, a cow pox epistle . . .

10. ed. with considerable additions. London: sold by Longman, Hurst, Rees, and Orme . . . 1807, opened at p. 61.

Another of the many tracts by Moseley against vaccination. This scurrilous attack on Rowland Hill, who championed vaccination, is typical of the virulent pamphlets written by both his followers and his opponents. Its popularity is evidenced by the number of editions which were published after the first appeared in 1806. As a mild example of Moseley's invective are these lines in the Appendix: "So, Rowland, since the fourth edition of my Oliver, you have sunk down among the swine-pox herd, in Dr. Bradley's yellow pigsty . . . there . . . you may wallow and grunt, and play the swine with the brute creation."

Birch, John. 1745-1815.

A copy of the answer to the queries of the London College of Surgeons, and of a letter to the College of Physicians, respecting the experiment of cow-pox . . . to which is added, the second edition of serious reasons for . . . objecting to the practice of vaccination . . .

London: printed by J. Smeeton . . .1807.

One of a number of articles by the well known surgeon who was an ardent foe of vaccination. He writes that the College of Physicians "were not authorized to draw any conclusions in favour of vaccination from the facts before them." The title-page has the inscription: "For Dr. Moseley from the author."

Metallic tractors, and cow pox inoculation. On Thursday, June 11, 1807, at the British Forum . . . Question. "Which has proved a more striking instance of public credulity, the metallic tractors of Perkins—or the cow pox inoculation?"

[London?, 1807].

"The mask of deception, at length, is almost removed; and many of those who formerly countenanced these absurdities, now repent of their folly, and resent the imposition practised upon their understandings . . ."

Adjourned debate. Metallic tractors, and cow pox inoculation. On Thursday, June 18, 1807, at the British Forum . . .

[London?, 1807].

"After an interesting discussion, before

a numerous and intelligent audience, (among whom were several persons of the first eminence in the medical profession) the farther consideration of the question was adjourned . . ."

Cow-pox.

In: *Cobbett's weekly political register*, London, vol. 13, June 18, 1808, col. 965-967.

"This experiment, which has cost the nation twenty thousand pounds, or more, to Dr. Jenner, is now, it seems, to have an act of Parliament to give it currency. Mr. Rose has brought in a bill for the purpose of 'establishing a central institution in London for the distribution of the cow-pox matter . . .' and thus this disgusting and degrading remedy will cost the nation another four or five thousand pounds annually . . ." William Cobbett, 1762-1835, the famous controversialist, uses his journal for this attack on vaccination.

The Spread of Vaccination to Foreign Countries

France

Desoteux, François. 1724-1803, and Valentin, Louis. 1758-1829.

Traité historique et pratique de l'inoculation . . .

A Paris: chez Agasse . . . Fuchs . . . l'an 8 . . . [1800], opened at pp. 302-303, foot-note.

In this treatise on inoculation the authors bring to the attention of the French a brief account of Jenner's work, with the information that ample details may be found in articles published in the *Bibliothèque britannique*, nos. 69-72, 1798-9. A French edition of Jenner's work was published in Lyon in 1800.

Woodville, William. 1752-1805.

Rapport sur le cowpox ou la petite vérole des vaches, et sur l'inoculation de cette maladie . . . ouvrage traduit de l'Anglais, augmenté d'un précis de ce qui a été fait sur cette maladie, et de notes historiques: par A. Aubert, D.M.

A Paris: chez l'Auteur . . . Gabon . . . J. A. Brosson . . . an VIII. [1800].

A translation of Woodville's tract by Antoine Aubert, 1772-1820, eminent Swiss physician who worked under Woodville in London.

Colon, François. 1764-1812.

Histoire de l'introduction et des progrès de la vaccine en France . . .

A Paris: chez le Normant . . . an IX.—1801, opened at a$_3$v.

Colon was one of the first and most ardent advocates of vaccination in France. "Pères et méres, je ne pouvois vous donner des preuves plus convaincantes de la bonté de la vaccine, qu'en étant le premier à Paris qui l'aie employée pour son enfant."

Husson, Henri Marie. 1772-1853.

Recherches historiques et médicales sur la vaccine . . .

2. ed. augmentée . . . a Paris: chez Gabon et cie . . . (1801), opened at p. 132.

Another early enthusiast in France writes, "la Postérité bénira la mémoire de Jenner, et les siècles à venir le proclameront l'un des premiers bienfaiteurs de l'humanité."

Moreau, Jacques Louis. 1771-1826.

Traité historique et pratique de la vaccine . . .

A Paris: chez Bernard . . . (1801), opened at p. 346.

Moreau, a medical librarian and historian of medicine predicts that vaccination will make smallpox vanish from the earth.

Comité Central de Vaccine.

Rapport du Comité . . .

A Paris: de l'imprimerie de Guilleminet, chez Mme Ve Richard . . . 1803, opened at p. ix.

A group of French citizens formed in 1800 a society to investigate the new discovery. The Committee appointed to carry out the investigations, after three years' consideration, concluded: "Les essais les plus multipliées, les épreuves les plus décisives, les autorités les plus imposantes, une approbation unanime et générale dans toute la France comme dans tout l'univers médical, ont dissipé les doutes, amené la con-

viction, et forcé au silence ceux méme des adversaires que l'évidence n'a pas convertis."

Chappon, Pierre. 1749-1810.

Traité historique des dangers de la vaccine; suivi d'observations . . . sur le rapport du Comité Central de Vaccine . . .

A Paris: chez Demonville et Soeurs . . . 1803, opened at p. 268.

The author, a violent opponent of vaccination, maintains that: "Le Comité Central de Vaccine de Paris, loin d'affaiblir mes opinions, les a singuliérement fortifiées par ses trés-faibles et trés-insignifiantes réfutations des faits énoncés par les antagonistes de ce moderne spécifique . . ."

Gauthier-Désiles, Antoine Marie. fl. ca. 1800.

La vaccine, poëme . . .

A Paris: chez Michaud frères . . . et chez P. Blanchard et Ce. . . . M. DCCC. X, opened at p. 27.

"Salut au bon Jenner, bienfaiteur des mortels!
Leurs coeurs reconnaissants lui doivent des autels.
Lui seul, dans nos climates que désole la guerre,
Sait réparer les maux causés par l'Angleterre."

Germany

Jenner, Edward. 1749-1823.

Untersuchungen über die Ursachen und Wirkungen der Kuhpocken . . . aus dem Englischen übersezt von G. Fr. Ballhorn . . .

Hannover: bei den Gebrüdern Hahn, 1799.

This German edition of Jenner's work was translated by the physician, Georg Friedrich Ballhorn.

Pearson, George. 1751-1828.

Untersuchung über die Geschichte der Kuhpocken . . . aus dem Englischen übersezt von J. F. Küttlinger . . .

Nürnberg: in der Raspeschen Buchhandlung, 1800.

A translation into German of Pearson's work by the physician, Johann Küttlinger, 1778-1851.

Aikin, Charles Rochemont. 1775-1847.

Kurzgefasste Übersicht der wichtigsten Thatsachen welche bisher über die Kuhpocken erschienen sind. Aus dem Englischen übersetzt von J. Hunnemann . . .

Hannover: bei den Gebrudern Hahn, 1801.

A German translation of the work of the physician and chemist. The English edition was published in 1800.

Schmiedtgen, J. G. D. fl. ca. 1800.

Die Kuhpockenimpfung . . . in Briefen an Sophie M*** geb. T*** . . .

Leipzig: bei Wilhelm Rein, 1801, opened at pl. at end.

The author calls himself the Director of the Almshouse, but says he is writing as a citizen of the world rather than as a physician. He says, "Zur Herausgabe dieser Briefe wurde ich durch einige mir sehr schätzbare Männer veranlasst, und mein Herz war um so bereitwilliger dazu, da ihr Gegenstand so gemeinnützig ist . . ."

Kühn, Karl Gottlob. 1754-1840.

De morbo vaccino-varioloso . . . super quibus . . . A. D. XXXI. Jul. CIↃIↃCCCI . . . publice disputabit Carolus Gottlob Kühn . . . adsumto socio Christiano Samuele Weiss . . .

Lipsiae: impressit Joannes Gottlob Henricus Richter, [1801].

The distinguished historian of medicine advocates vaccination.

Wetzler, Johann Evangelist. 1774-1850.

Gedanken über die beste Art und Weise, die Impfung der Kuhpocken . . .

München: im Verlage bey Johann Esaias Seidel, 1803, opened at p. [7].

The Director of the Vaccination Institute at Ulm writes: "Durch allgemeine Impfung der Kuhpocken ist in der künftigen Generation die Bevölkerung in Europa wenigstens um 15 Millionen, in Teutschland um 2 Millionen, in Baiern um 200000 Menschen vermehret . . ."

Italy

Raccolta di memorie di osservazioni ed esperienze sopra l'inoculazione della vaccina o sia vajuolo delle vacche a preservazione della umana specie traduzione dal Francese.

Venezia: dalle stampe di Giovanni Zatta, 1801, opened at p. 18.

This collection contains among other items a translation of an article of Odier's published originally in the *Bibliothèque britannique*, Geneva, nos. 113 and 114. Louis Odier, 1748-1817, was an early advocate of vaccination in Geneva.

Barbieri, Matteo. fl. ca. 1800.

La vaccina alla prova ossia l'antiperistasi del vajuolo memoria . . .

Verona: presso l'Erede Merlo, 1802, opened at p. 147.

The list of persons vaccinated in Verona in 1801 which starts on page 147 includes 160 cases.

Cisalpine Republic. Risultati di osservazioni e sperienze sull'inoculazione del vajuolo vaccino instituite nello spedal maggiore di Milano dalla Commissione Medico-Chirurgica superiormente delegata a questo oggetto. Pubblicati per decreto del Comitato Governativo della Repubblica Cisalpina.

Milano: dalla tipografia di Luigi Veladini, anno X. [1802], opened at p. 223.

The Committee's experiments led to the conclusion that there were no important objections to vaccination, but the Committee felt that the satires against vaccination "in materia tanto grave e importante, sono ancora una prova della mancanza di argomenti solidi e reali."

Calcagni, Francesco. fl. ca. 1800.

A letter on the inoculation of the vaccina, practised in Sicily . . . translated from the Italian by Edward Cutbush . . .

Philadelphia: published by B. and T. Kite . . . 1807, opened at p. 8.

"Sicily is indebted, for the introduction of the vaccina . . . to the care of Cav. Sig. D. Giovanni Vivenzio, and Sig. Michele Troja, well known for their literary works, on medicine and surgery. The first vaccination, in Palermo, was performed by Jos. H. Marshall, March 14th, 1801. The continuance of it in Palermo . . . was not owing to my attention and labour only, but to the diligence and care of D. Ciro Troja." Cutbush, 1772-1843, was a surgeon of the United States Navy.

Sacco, Luigi. 1769-1836.

Trattato di vaccinazione con osservazioni sul giavardo e vajuolo pecorino . . .

Milano: dalla tipografia Mussi, M.DCCC.IX, opened at p. 6.

Sacco was responsible for the introduction of vaccination into Italy and was one of its most ardent supporters. He writes that he himself vaccinated more than 500,000 individuals, while 900,000 others were vaccinated by men appointed by him for that purpose.

Ponta, Gioachino. fl. ca. 1800.

Il trionfo della vaccinia poema . . .

Parma: co'tipi Bodoniani, MDCCCX, opened at p. 1.

"Canto l'arabo morbo, e i duri mali,
Con che l'uminità tremendo afflisse,
E l'arte che a domarne il tosco e l'ali
Invano sudò tanto e tanto scrisse,
E la tarda pietà degl'immortali,
Che alfin Jenner creò, che lo sconfisse,
E i suoi seguaci e i re propizj io canto,
Onde cessò d'umanitade il pianto."

Other Countries

de Carro, Jean. 1770-1856.

Beobachtungen und Erfahrungen über die Impfung der Kuhpocke . . . aus dem Französischen übersetzt von . . . Joseph von Portenschlag . . .

Wien: in Joseph Geistinger's Buchhandlung, 1802.

The author, a native of Geneva, practised medicine in Vienna, and was instrumental in the spread of vaccination.

von Portenschlag-Ledermayer, Joseph. 1742-1834.

Über den Wasserkopf . . . nebst einem Anhang . . . und einen Aufsatz über die Kuhpocke enthaltend.

Wien: gedruckt und verlegt bey Anton Strauss, 1812, opened at p. 545.

This Viennese physician writes: "Ich habe seit acht Jahren 1270 Personen vaccinirt, darunter einige wenige erwachsen waren,

und niemahls habe ich gefährliche Folgen beobachtet . . ."

[Description of the expedition of Francisco Xavier de Balmi y Berenguer executed with the sole object of carrying to all the possessions of the Crown of Spain, situated beyond the seas, the estimable gift of vaccine inoculation.]

[Cheltenham, 1806].

This is a translation of the Supplement to the *Madrid gazette* of October 14th, 1806. De Balmis, surgeon to the King, sailed in November, 1803. The expedition was divided into two sections, one which went to South America, the other to Havana and thence to Yucatan, Mexico, etc. De Balmis, sailing as far as China, did not return home until August, 1806. This volume with both the Spanish and English text, has an inscription on the fly-leaf: "With Dr. Jenner's best wishes. Cheltenham, Dec. 21, 1806."

Hernandez, Rafael. 1779-1857.

Observaciones-historicas del origen, progreso y estado actual de la vacuna en Menorca . . .

Mahon: imprenta de Fabregues, 1814, opened at p. 28.

The author of this favorable account of vaccination in Minorca writes: "Peró afortunadamente los mas se convencieron y penetraron de que era dimanado de haber tenido los indicados la vacuna espúrea: prueba irrefragable de ésta luminosa verdad, es haber permitido en aquella lamentable crisis variolosa, que sus tiernos hijos fuesen vacunados con el mas feliz y dicho exîto . . ."

de Araujo Carneiro, Heliodoro Jacinto. fl. ca. 1800.

Reflexoens, e observaçoens, sobre a pratica da inoculaçaõ da vaccina, e as suas funestas consequencias: feitas em Englaterra . . .

Londres: na impresao de Mr. Cox, Filho, e Baylis . . . 1808, opened at p. 111.

The author describes himself as physician to His Royal Highness, Prince Regent of Portugal. An English translation appeared in 1809. This copy was a gift from the author to Dr. Moseley. A translation of the passage shown above reads: "Probably many infants have descended to their graves the victims of the obstinacy of those who wilfully persist in their error and delusion. But a day will come when the healing art will be again rendered mystic and religious, to avoid the abuse of men's imagination."

Keir, George. d. after 1814.

Account of the introduction of the cow pox into India.

Bombay: printed by Moroba Damotherjee . . . 1803.

"The following account of the successful introduction of the vaccine disease into Bombay, and its diffusion throughout India, is . . . inscribed to . . . Jonathan Duncan, to whose . . . interposition, the Indian world are . . . indebted for the blessings that have already marked the progress of vaccination, as well as for the incalculable benefits that must . . . arise from it, to every quarter of the British Dominions in Asia." Keir was a surgeon in the Indian medical service. Duncan was Governor of Bombay.

The Spread of Vaccination in the United States

The following important account of a new publication in Great-Britain, by Dr. Jenner, entitled "An inquiry into the causes and effects of the variolae vaccinae, or cow pox," is extracted from the Analytical Review for July, 1798.

In: *Medical repository,* N. Y., 1799, vol. 2, p. 255.

An early and favorable report of the discovery.

Waterhouse, Benjamin. 1754-1846.

A prospect of exterminating the small-pox; being the history of the variolae vaccinae, or kine-pox, commonly called the cow-pox . . . with an account of a series of inoculations performed for the kine-pox, in Massachusetts.

[Cambridge]: printed for the author, at the Cambridge press, by William Hilliard . . . 1800 . . . opened at p. 18.

An account of the first vaccination performed in the United States.

[Print, comparing appearance of vaccine vesicles with those caused by inoculation of

smallpox. This is an original print sent by Jenner to Waterhouse in 1801].

North, Elisha. 1771-1843.

A treatise on a malignant epidemic, commonly called spotted fever . . .

New-York: printed and sold by T. & J. Swords . . . 1811, opened at p. 2, footnote.

In this notable work, the first volume on cerebrospinal meningitis, the author writes, "I obtained some vaccine infection from New-Haven in December, 1800, which matter came from Dr. Waterhouse. This was, I believe, the first matter which proved to be genuine that was ever used west and south of Connecticut River. This acquisition enabled me to become acquainted with the cow-pox during the winter." In May, 1801, a young man consulted him, who, upon examination, proved to be suffering from the kine-pox, the first example of the disease to be recognized in this country.

Jefferson, Thomas. 1743-1826.

[Autograph letter signed, addressed to Dr. John Shore. Photostat copy of original in the Massachusetts Historical Society.]

Monticello, September 12, 1801.

On December 1, 1800, Waterhouse wrote to Jefferson, sending him a copy of his work on vaccination. Jefferson, interested in the new discovery, replied promptly and gave his whole hearted support. In this letter, less than a year later, he writes, "I received about a month ago some vaccine matter from Dr. Waterhouse at Boston, and by a second conveyance some which he had just received from Doctr. Jenner of London. Both have succeeded perfectly." In a letter to Waterhouse, July 25, 1801, Jefferson had informed him that both the first and second supplies of "vaccine matter had failed."

Seaman, Valentine. 1765-1817.

A report on the vaccine or kine-pox inoculation in New-York.

In: *Medical repository*, N. Y., 1802, vol. 5, p. 236.

"With infection fresh from the arm of Governor Sergeant's domestic, who had been inoculated in Boston by Dr. Waterhouse, and who arrived here on the 22d of 5th month (May) [1801], in due season for his pustule to contain active matter, I succeeded in vaccinating a number of persons, in this city. The complaint . . . left no doubt on my mind of its being the *genuine* vaccine disease."

Seaman, Valentine. 1765-1817.

An account of the introduction of vaccination or kine-pock inoculation in N-York. [Manuscript in the hand of the author].

[New York, 1802], opened at p. [18].

Seaman in this manuscript quotes a number of brief articles written by himself and others. The *Mercantile Advertiser*, New York newspaper which published several notices concerning the new discovery, printed, December 30th, 1801, an extract of a letter from Seaman to Waterhouse, dated December, 22d, 1801. In this letter Seaman complains of the opposition of New York physicians to vaccination, "Indeed such a general apathy seems to pervade the minds of even of those who certainly must be convinced of its advantages, that I have not yet got a single co-operator among them . . ."

Coxe, John Redman. 1773-1864.

Practical observations on vaccination: or inoculation for the cow-pock . . .

Philadelphia: printed and sold by James Humphreys . . . 1802 . . ., opened at pp. 122-3.

Coxe, through Dr. John Vaughan, communicated with Jefferson. The latter's reply, "together with the vaccine infection, was received . . . on the 9th of November, 1801; a day which I trust will be memorable among the citizens of Philadelphia, from the great benefit connected with it. I immediately employed the infection . . . on myself and four others . . ."

Jenner, Edward. 1749-1823.

An inquiry into the causes and effects of the variolae vaccinae . . . from the second London edition.

Springfield: re-printed for Dr. Samuel Cooley, by Ashley & Brewer, 1802, opened at pl. opp. p. 22.

American edition of Jenner's work.

Ramsay, David. 1749-1815.

The Charleston medical register, for the year M.DCCCII . . .

Charleston: printed by W. P. Young . . . 1803, opened at p. 5.

"Vaccination was introduced into Charleston, in February, and in a short time became general . . . Nothing is now wanting to exterminate the small-pox, but a general and simultaneous vaccination." In his *History of South Carolina* . . . Newberry, S. C., 1858, vol. 2, p. 45, he writes: "This substitute for the small pox was introduced into Charlestown by David Ramsay, who after many trials succeeded in February, 1802, in communicating the disease to his son Nathaniel"

Waterhouse, Benjamin. 1754-1846.

A prospect of exterminating the small pox Part II, being a continuation of a narrative of facts concerning the progress of the new inoculation in America; together with practical observations on the local appearance, symptoms, and mode of treating the variola vaccina, or kine pock; including some letters to the author, from distinguished characters, on the subject of this benign remedy . . .

Cambridge: printed for the author, at the University press by William Hilliard, 1802 . . . opened at p. 113.

Part of a letter from Jenner to Waterhouse is shown here, containing Jenner's rules, which he believes "should be perfectly understood by those who practise the vaccine inoculation . . ."

Massachusetts Medical Society.

Report on vaccination, read . . . June 1, 1808.

In: *Medical communications of the Massachusetts Medical Society,* Boston, published by the Society, 1808, vol. 1, no. 2, part 2, opened at p. 137.

A committee appointed to investigate vaccination made the following resolutions: "First—That . . . persons who undergo the cowpock are thereby rendered as incapable of being affected by the virus of smallpox . . .

Second—That . . . in the early and even in some of the late practice of inoculating for the cowpock, the disease may not have been produced in the most perfect manner . . .

Third—That the most perfect and absolute security is to be derived from subsequent inoculation . . .

Fourth—That it be . . . recommended . . . that all persons who have been vaccinated . . . call on those who inoculated them to perform a second inoculation . . ."

[Certificate testifying that] "The twelve individuals whose names are written on the back of this card were vaccinated by Doctr. Amos Holbrook at the town inoculation in July last; they were tested by small pox inoculation on the 10th instant, and discharged this day from the hospital after offering to the world . . . an additional proof of the never failing power of that mild preventive, the cow pock against small pox infection . . ."

Milton, October 25th, 1809.

A collection of papers relative to the transactions of the town of Milton, in the state of Massachusetts, to promote a general inoculation of the cow pox, or kine pock, as a never failing preventive against small pox infection.

Boston: printed for the town of Milton, by J. Belcher, 1809, opened at p. 11.

The Selectmen of the town of Milton called a special meeting to consider "adopting some measures for a general inoculation of the cow pox." The town was divided into districts and the offer made to "inoculate any of the inhabitants of said town for twenty five cents each." "In the course of a few days it was completed, offering for a result three hundred and thirty-seven individuals inoculated . . . " The Selectmen advise, "the institution in every town—of public measures—of a yearly inoculation—of a register—and of a standing committee of active zealous men . . ."

Waterhouse, Benjamin. 1754-1846.

Information respecting the origin, progress, and efficacy of the kine pock inoculation . . . extracted from . . . "A prospect of exterminating the small-pox" . . .

Cambridge: printed by Hilliard and Metcalf, 1810, opened at p. 53.

Although the author's experiments with vaccination, and particularly his insistence on the use of vaccine virus of pure quality, his wide correspondence and his publications, established his reputation as a scientist, his personal animosities made

him fervently disliked by his colleagues, and led to his being ousted from the university. He presented a petition to the Legislature of Massachusetts asking for remuneration for his services. Marginal notes in this copy, which seem to be written in his hand, refer to the refusal of his request: "Party politics defeated his application. *Congress* treated his petition with respect, & a committee reported that he should be recommended to the President. In consequence Dr. W. was offered the place of hospital surgeon, with his locality fixed where he now resides. Soon after this the outrageous spirit of party, wc. at that time, marked and disgraced Massachusetts, stripped him of all his offices in the university, leaving him now nothing for the support of his large family, the pay & rations of an hospital surgeon—grey hairs & want of bread." Another inscription in the same hand is dated, Cambridge, Jany. 15th, 1817.

Seaman, Valentine. 1765-1817.

A discourse upon vaccination . . .

New-York: printed and sold by Samuel Wood & Sons . . . 1816, opened at p. [5].

In this lecture to students at the New York Hospital, Seaman says, "You have now, in a variety of cases, witnessed an operation, which, although the most simple and trifling of any that comes under the hand of a surgeon, is, in its consequences, of the greatest importance: it has probably already done more good to society, prevented more pain and distress, and preserved more lives, than *all* the *capital* operations that have ever been performed." He explains that: "All children born in the lying-in-ward of the hospital, are vaccinated before they leave the house."

Vaccine Institutes

London Vaccine Institution.

Plan and regulations of the London Vaccine Institution, for inoculating and supplying matter, free of expence . . .

[London]: J. Swan, printer . . . [1808].

This organization was formed in 1806, with John Walker, 1759-1830, as Director. Walker had served as Resident Inoculator of the Jennerian Society which was founded in 1803, but was forced to resign. With friends, he then started this new organization.

London Vaccine Institution.

At the Annual Meeting of the Governors . . . holden . . . April 6th, 1809 . . . Report.

London: printed by Darton and Harvey . . . [1809].

The Board reports that the number of vaccinations done since the organization was begun, are 4,018 by Dr. Walker; 2,921 by "appointed inoculators in the Metropolis;" and 102,008 by the "appointed inoculators in the country."

Vaccine Pock Institution.

The report on the cow-pock inoculation, from the practice at the Vaccine-Pock Institution, during the years 1800, 1801, and 1802 . . .

London: printed and sold by Henry Reynell . . . 1803, opened at p. 127.

This Institution was founded in 1799 by Pearson, and led to trouble between Pearson and Jenner. Inserted at p. 127 of this report is a folding chart, entitled, "Formula of the register sheets of the Vaccine Institution."

Vaccine Pock Institution.

Directions for the vaccine inoculation.

[London]: printed by Henry Reynell, [1804].

"The Institution does not warrant any matter but that which has on the package, the impression of the seal of the Institution, *namely*, a cow, with the motto, *Feliciores inserit.*"

National Vaccine Establishment.

The Board appointed by His Majesty's Government to regulate the affairs of this Establishment is composed of the President and four Censors of the Royal College of Physicians; the Master and two Governors of the Royal College of Surgeons . . . Ordered by the Board that the following description of the vaccine

vesicle and instructions relative to vaccination . . . be strictly observed . . .

[London]: J. Smeeton, printer . . . [1809], opened at p. 3.

This organization, sponsored by the Government, was founded in 1808. This copy has annotations in the hand of John Birch, opponent of vaccination, dated November 5th, 1809. "Dr. Jenner has since deserted his friends at the Vaccine Establishment, has run away from London and dares not go to Cheltenham, because the smallpox has broke out in several patients vaccinated by himself, and because it is proved that he has inoculated his own child with *smallpox*, not daring to trust his own experiment as a security."

Royal Jennerian Society.

[Engraved diploma, presented to Dr. James Anderson, 1798-1886, of New York, on his election as Honorary Member, London, May 17th, 1820].

London Vaccine Institution.

[Engraved diploma presented to Dr. James Anderson in testimony of the high value placed on "his liberal cooperation . . . in the philanthropic cause of vaccination," February 28th, 1821].

These two organizations had been previously united with Dr. Walker as Director.

New York Institution for the Inoculation of the Kine Pock.

[Minutes of meetings].

[New York, 1802-1805], opened at fo.1v-2r.

These pages show the Minutes of the meetings held on April 22, 1802 and May 20, 1802. The Minutes of the earlier meeting announce, that "The Committee appointed to represent the objects of the Institution to the corporation of this city, & request that the poor children of the Almshouse might be inoculated under its directions—reported, that the Common Council at their last meeting had not come to a decision thereon."

New York Institution for the Inoculation of the Kine Pock.

Constitution for the government of . . . to which are added, the Proceedings of the two first meetings of the Contributors.

New-York: printed by Isaac Collins and Son, 1802, opened at p. [3].

"A number of citizens of New-York, convinced of the important advantages to be derived from substituting the kine pock in place of the small-pox inoculation, in this country, have associated for the promotion thereof, and liberally contributed towards the establishment of an institution for the purpose of disseminating the benefits of this new inoculation among the poor, of supporting a constant supply of the genuine infection, and of promoting a more general knowledge of the disease, and the proper method of successfully communicating it . . ."

New York Institution for the Inoculation of the Kine Pock.

Facts and observations relative to the kine-pock . . . Addressed to the more indigent part of the community.

New-York: printed by Isaac Collins and Son, 1802, opened at pp. 6-7.

"A number of benevolent citizens have associated and established a permanent institution; a main object whereof is to disseminate the blessings of this disease, free of cost, among the indigent members of the community."

New York Institution for the Inoculation of the Kine Pock.

Directions for the kine pock inoculation.

[New York, 1802], opened at p. [3].

The signatures of the members of the Medical Board, consisting of Valentine Seaman, Edward Miller, and Samuel Borrowe, appear at the end of these directions, followed by some resolutions made by the Directors concerning the supplying of matter for inoculation to physicians.

Smith, James. 1771-1841.

Prospectus of a permanent national vaccine institution, to be established in the city of Washington, District of Columbia.

Baltimore, 1818, opened at p. [3].

Smith performed vaccinations in Maryland as early as May, 1801. He persuaded the Legislature of Maryland to enact a law for the establishment of a vaccine institute in 1809. Although his efforts to found a national vaccine institute failed, he directed the United States Vaccine Agency which was in existence from 1813 to 1822.

Vaccination in Caricature

Aesculape, revue mensuelle illustrée.
Paris, 1912, vol. 2, opened at pp. 138-139.

Burroughs Wellcome & Company.
The history of inoculation and vaccination . . .
London, [1913], opened at p. [106].

Der Arzt in der Karikatur herausgegeben von Cornelis Veth mit einer Einleitung von Friedrich Krauss.
Berlin: Otto Stollberg, [1928?], opened at p. 55.

Cabanès, Augustin. 1862-1928.
La médecine en caricature.
Paris: P. Longuet, [1925?], opened at p. [11].

Holländer, Eugen. 1867-1932.
Die Karikatur und Satire in der Medizin . . .
Stuttgart: Ferdinand Enke, 1905, opened at p. [305].

Holländer, Eugen. 1867-1932.
Die Karikatur und Satire in der Medizin . . .
2. ed. Stuttgart: Ferdinand Enke, 1921, opened at p. [351].

INFECTIONS

A Three-Foot Shelf for the Practitioner

Selected by

FRANK PLACE
Chief Reference Librarian

Text-Books and Monographs

Dick, G. F. & Dick, G. H. Scarlet fever. Chicago, Year Book Pub. [1938], 149 p.

Gay, F. P. [et al.] Agents of disease and host resistance; including the principles of immunology, bacteriology [etc.]. Springfield, Ill., C. C. Thomas, 1935, 581 p.

Goodall, J. R. Puerperal infection. Montreal, 1932, 189 p.

Great Britain. Med. Research Council. Diphtheria; its bacteriology, pathology and immunology. London, H. M. S. O., 1923. 544 p.

Greenwood, Major. Epidemics and crowd-diseases. An introduction to the study of epidemiology. London, Williams & Norgate, [1935], 409 p.

Hammond, T. E. Infections of the urinary tract. London, H. K. Lewis Co., 1935, 250 p.

Havens, L. C. The bacteriology of typhoid, salmonella, and dysentery infections and carrier states. N. Y., Commonwealth Fund, 1935, 158 p.

Heffron, Roderick. Pneumonia: with special reference to pneumococcus lobar pneumonia. N. Y., Commonwealth Fund, 1939, 1086 p.

Influenza; essays by several authors. Edited by F. G. Crookshank. London, W. Heinemann, 1922. 529 p.

Kanavel, A. B. Infections of the hand . . . 7. ed. Phil., Lea & Febiger, 1939, 503 p.

Libman, Emanuel. General infections by bacteria. In: New York Academy of Medicine Lectures on medicine & surgery, 1927, pp. 69-91.

Libman, Emanuel & Friedberg, C. K. Bacterial endocarditis. In: Cyclopedia of Medicine . . . (Piersol) 2. ed., Phil., F. A. Davis Co., 1939, v. 3, pp. 648-665.

MacNevin, M. G. & Vaughan, H. S. Mouth infections and their relation to systemic diseases. N. Y., Joseph Purcell Research Memorial, 1930. 2 v.

Modern medical therapy in general practice. Edited by D. P. Barr. v. 2. Infectious diseases . . . Baltimore, Williams & Wilkins Co., 1940.

Nelson new loose-leaf medicine. 1. Infectious diseases. N. Y., T. Nelson & Sons, [1930-1939].

Ormerod, F. C. Tuberculosis of the upper respiratory tract. London, J. Bale, 1939. 215 p.

Pelouze, P. S. Gonorrhoea in the male and female, 3. ed., Phil., W. B. Saunders Co., 1939, 489 p.

Therapeutics (The) of internal diseases. [G. Blumer, ed.] v. 2 Infectious diseases. p. 485-969. N. Y., D. Appleton-Century Co., 1940.

Virus and rickettsial diseases . . . A symposium held at Harvard school of public health . . . 1939. Cambridge, Harvard Univ. Press, 1940. 907 p.

Wilensky, A. O. Osteomyelitis: its pathogenesis, symptomatology and treatment. N. Y., Macmillan Co., 1934, 454 p.

Wolbach, S. B.; Todd, J. L. & Palfrey, F. W. The etiology and pathology of typhus. Cambridge: Harvard Univ. Press, 1922, 222 p. 34 pl.

William J. Matheson Commission. Epidemic encephalitis. Etiology, epidemiology, treatment. Third report. N. Y., Columbia Univ. Press, 1939, 493 p.

Zinsser, Hans; Enders, J. F. & Fothergill, L. D. Immunity: principles and application in medicine and public health. 5. ed. of, "Resistance to infectious diseases." N. Y., Macmillan Co., 1939, 801 p.

Specimen Periodicals

Journal of Hygiene. Cambridge, England.

Journal of Infectious Diseases. Chicago.

Revista de patologia infecciosa. Buenos Aires.

Zeitschrift für Hygiene und Infektionskrankheiten. Berlin.

PROCEEDINGS OF ACADEMY MEETINGS

STATED MEETING

MAY 15—*The Harvey Society in affiliation with The New York Academy of Medicine.* The eighth Harvey lecture, "Specific Relationship of Cell Composition to Biological Activity of Hemolytic Streptococci," Rebecca C. Lancefield, Associate, The Rockefeller Institute for Medical Research. ¶ Report on election of Academy Fellows.

SECTION MEETINGS

MAY 2—*Surgery.* Executive session—a] Reading of the minutes; b] Election of Section Officers and member of Advisory Committee—for Chairman, Frank B. Berry; for Secretary, Frank J. McGowan; for member of Advisory Committee, Grant P. Pennoyer. ¶ Presentation of cases—a] Human bites of the hand, Roland L. Maier; Discussion, Norman L. Higinbotham; b] Cases illustrating first paper of the evening, Lester Blum. ¶ Papers of the evening—a] The use of partial myotomy in flexor tenorrhaphy, Lester Blum; Discussion, John H. Garlock; b] Technique for drainage of suppurative tenosynovitis of fingers and their extension into the flexor base of forearm, Hugh Auchincloss; Discussion, Philip C. Potter; c] Puncture wounds of the hand, Condict W. Cutler, Jr.; Discussion, Kenneth M. Lewis. ¶ General discussion.

MAY 6—*Dermatology and Syphilology.* Executive session—a] Reading of the minutes; b] Election of Section Officers and member of Advisory Committee—for Chairman, Louis Tulipan; for Secretary, Timothy J. Riordan; for member of Advisory Committee, George C. Andrews. ¶ Presentation of cases—a] Beth Israel Hospital; b] Brooklyn Jewish Hospital; c] Cornell Medical College Clinic; d] Miscellaneous cases. ¶ Discussion of cases.

MAY 6—*Combined Meeting: Neurology and Psychiatry and the New York Neurological Society.* Executive session—a] Reading of the minutes; b] Election of Academy Section Officers and member of Advisory Committee—for Chairman, George H. Hyslop; for Vice-Chairman, Harold G. Wolff; for Secretary, Charles Davison; for member of Advisory Committee, Samuel Brock. ¶ Presentation of cases—a] Salvarsan encephalitis with recovery, E. D. Friedman, Ernest Newman (by invitation); Discussion, Bernhard Dattner (by invitation). ¶ Papers of the evening—a] Brain abscess of uncommon origin; relation to osteomyelitis of the skull (clinico-pathological study), Victor W. Eisenstein, Pittsburgh (by invitation), E. D. Friedman, Charles Davison; Discussion, Joseph J. King, Edmund P. Fowler, Joseph H. Globus; b] Electrical injuries of the central nervous system, Leo Alexander, Boston (by invitation); Discussion, Lewis D. Stevenson, Armando Ferraro.

MAY 8—*Pediatrics.* Case demonstrations from 7:30 to 8:00 o'clock. ¶ Executive session—a] Reading of the minutes; b] Election of Section Officers and member of Advisory Committee—for Chairman, Alfred G. Langemann; for Secretary, Edith M. Lincoln; for member of Advisory Committee, Leslie O. Ashton. ¶ Presentation of single case reports—a] Willard Parker Hospital—A case simulating poliomyelitis, Agnes G. Wilson (by invitation); b] Lincoln Hospital—Cerebral embolus in a case of rheumatic fever, Edward Press (by invitation); c] New York Hospital—A case of bleeding due to prothrombin deficiency during gastrointestinal intoxication, Martin J. Glynn (by invitation); d] Bronx Hospital—Meconium ileus, Bernard S. Denzer; e] New York Post-Graduate Hospital—Case for diagnosis—possibly atypical leukemia, Martin Green (by invitation); f] Lenox Hill

Hospital—Meconium ileus, Irwin P. Sobel; g] Long Island College Hospital—Multiple hemangiomata with special reference to hemangioma of the spinal cord, Stanley S. Lamm (by invitation); h] Beekman Hospital—Cooley's anemia in youth of 18 years observed since early childhood: familial aspects, Carl H. Smith; i] Babies Hospital—Congenital diaphragmatic hernia — operation at twelfth week of age, William G. Heeks (by invitation); j] Beth Israel Hospital—Duodenal ulcer with massive hemorrhage in a child, Albert B. Newman (by invitation); k] Roosevelt Hospital—A case of auricular paroxysmal tachycardia in an infant one-month old, Edmund N. Joyner III (by invitation); l] Mount Sinai Hospital—Epidural granuloma associated with osteomyelitis of the spine, Ralph E. Moloshok (by invitation); m] Polyclinic Hospital—Cardiospasm in the newborn relieved by atropine, Sidney V. Haas; n] St. Luke's Hospital—Duplication of the ileum with bleeding ulcers, Charles W. Neuhardt (by invitation).

MAY 14—*Historical and Cultural Medicine.* Executive session—a] Reading of the minutes; b] Election of Section Officers and member of Advisory Committee—for Chairman, Claude E. Heaton; for Secretary, Herman Goodman; for member of Advisory Committee, Ramsay Spillman. ¶ Papers of the evening—a] History of fever therapy, William Bierman; Discussion, Bernard Dattner; b] The history of electrodiagnosis, Sidney Licht (by invitation); Discussion, Saul L. Heller. ¶ Discussion.

MAY 16—*Orthopedic Surgery.* Executive session—a] Reading of the minutes; b] Election of Section Officers and one member of Advisory Committee—for Chairman, Joseph Buchman; for Secretary, Donald E. McKenna; for member of Advisory Committee, Lewis Clark Wagner. ¶ Papers of the evening—a] The treatment of congenital club foot; methods and results (motion pictures and lantern slides), Malcolm B. Coutts (by invitation); b] Caisson disease of the bones, Carmelo C. Vitale (by invitation); c] X-ray findings in alkaptonuria and ochronotic arthritis, Maurice M. Pomeranz, Lewis J. Friedman, Isidore S. Tunick (by invitation). ¶ General discussion.

MAY 19—*Ophthalmology.* Executive session—a] Reading of the minutes; b] Election of Section Officers and one member of Advisory Committee—for Chairman, Kaufman Schlivek; for Secretary, Brittain F. Payne; for member of Advisory Committee, Algernon B. Reese. ¶ Presentation of cases—a] Uveoparotid fever, Plinio H. Montalvan (by invitation); b] Result after twenty-five years in a case of fat implantation into Tenon's capsule, Julius Wolff; c] Crystalline deposits in the cornea, A. Russell Sherman, Newark (by invitation); d] Three generations of corneal dystrophy, Sigmund Schutz (by invitation); e] Alkaptonuria with ochronosis of sclera (three cases), James W. Smith; f] Arachnodactylia with successful cataract extraction, William McLean. ¶ Motion pictures—a] Applied anatomy of the lens, Henry Minsky; b] Intracapsular extraction of subluxated lens (1) with loop (2) with suction, Ramon Castroviejo; c] Repair of depressed fracture of lower orbital margin with rib cartilage, Wendell L. Hughes, Hempstead; d] Relief of lid retraction in thyroid disease, Daniel B. Kirby. ¶ General discussion.

MAY 20—*Combined Meeting of the Section of Medicine and the New York Heart Association.* Executive session—a] Reading of the minutes; b] Election of Section Officers and one member of Advisory Committee—for Chairman, Asa L. Lincoln; for Secretary, Irving S. Wright; for member of Advisory Committee, Oswald R. Jones. ¶ Papers of the evening—a] The neurocirculatory adjustments during flying—physiological aspects, Ross A. McFarland, Ph.D., Harvard University; Discussion, Dickinson W. Richards, Jr.; b] Clinical as-

pects, Ashton Graybiel, Massachusetts General Hospital (by invitation); Discussion, Louis H. Bauer. ¶ General discussion.

Genito-Urinary Surgery — The following were elected at the April Meeting of the Section: Chairman, Frank Coleman Hamm; Secretary, Frank P. Twinem; member of Advisory Committee, Simon A. Beisler. No meeting of the Section was held in May due to the meeting of the American Urological Association at Colorado Springs, May 19-22.

MAY 21—*Otolaryngology.* Executive session—a] Reading of the minutes; b] Election of Section Officers and one member of Advisory Committee—for Chairman, Page Northington; for Secretary, Ward C. Denison; for member of Advisory Committee, James W. Babcock. ¶ Case reports—a] Pneumococcus, type 3, meningitis of sphenoiditic origin; operation; recovery; b] Hemolytic streptococcus bacteriemia of sphenoiditic origin; operation; recovery, Irving B. Goldman; c] A case of complete, bilateral, congenital occlusion of the nares, Arthur J. Huey, Walter P. Griffey (by invitation); d] Chemotherapy, internal and local, in a case of subperiostial mastoiditis with sinus involvement, Staphylococcus albus; operation; recovery, Earl E. Baker (by invitation). ¶ Papers of the evening—a] The effect of running cold water in the ears of guinea pigs, Paul Miller Osman (by invitation); b] The effect of androgen therapy on the voice and larynx of women, Joseph L. Goldman; Discussion, Udall J. Salmon (by invitation); c] The Sonovox, James S. Greene.

MAY 27—*Obstetrics and Gynecology.* Executive session—a] Reading of the minutes; b] Election of Section Officers and one member of Advisory Committee—for Chairman, Harry Aranow; for Secretary, William T. Kennedy; for member of Advisory Committee, Frank R. Smith. ¶ Papers of the evening. Program by Woman's Hospital—a] Premature separation of the placenta, Ralph L. Barrett; b] Essential mechanical factors for urinary continence in females, William T. Kennedy; c] Roentgen therapy for acute postpartum mastitis, Harriet McIntosh (by invitation); d] Erythroblastosis, Lyman Burnham (by invitation); e] Results of subcutaneous implantation of crystalline estrogen and progesterone, Daniel R. Mishell (by invitation), Leon R. Motyloff (by invitation).

AFFILIATED SOCIETIES

MAY 19—*New York Roentgen Society in affiliation with The New York Academy of Medicine.* Papers of the evening—a] The Cyclotron and its possible application to therapy, John R. Dunning (by invitation); b] The use of artificially radioactive substances in cancer therapy, John M. Kenney (by invitation). ¶ Discussion—Edith H. Quimby, Cornelius P. Rhoads (by invitation), Lloyd F. Craver (by invitation). ¶ Executive session.

MAY 22—*New York Pathological Society in affiliation with The New York Academy of Medicine.* Paper of the evening—The cancer problem now: a roving commentary, Peyton Rous, Rockefeller Institute for Medical Research.

DEATHS OF FELLOWS

FEINBERG, ISRAEL LOUIS: 111 East 61 Street, New York City; born in New York City, July 3, 1870; died in New York City, April 12, 1941; graduated in medicine from the University of the City of New York in 1893; elected a Fellow of the Academy, May 5, 1904.

Dr. Feinberg served as one of the four coroners of the City of New York from 1910 to 1918 and was president of the Board of Coroners for that period. In 1914 he advocated abolition of the coroner system and urged the substitution of the medical examiner system which is now in use.

McCOY, JOHN CHARLES: 292 Broadway, Paterson, New Jersey; born in Paterson, March 19, 1867; died in New York City, April 17, 1941; graduated in medicine from the College of Physicians and Surgeons, Columbia University in 1891; elected a Resident Fellow of the Academy November 16, 1899 and became an Associate Fellow in January 1904.

Dr. McCoy was consulting surgeon to the Paterson General Hospital, the Paterson Eye and Ear Infirmary, the Dover General Hospital, Holy Name Hospital at Teaneck, and the Good Samaritan Hospital at Suffern, New York. He had practiced surgery for fifty years except for the period when he served in France during the war as a Major and Lieutenant-Colonel. For his work with the A.E.F. the Distinguished Service Medal was awarded him.

Dr. McCoy was a Fellow of the American College of Surgeons and one of its founders, a Fellow of the American Medical Association, a diplomate of the American Board of Surgery and a member of its founders' group, and a member of the County and State Medical Societies of New Jersey. At his death, he was Chairman of the Passaic County Medical Preparedness Committee.

NICOLL, MATTHIAS, JR.: Rye, New York; born in New York City, February 12, 1868; died in Rye, May 13, 1941; received the degree of B.A. from Williams College in 1889, and graduated in medicine from the College of Physicians and Surgeons, Columbia University, in 1892; elected a Fellow of the Academy December 4, 1902.

Dr. Nicoll was New York State Commissioner of Health from 1923 to 1930 and Westchester County Health Commissioner from 1930 until his retirement in 1938. From 1908 to 1914, he was assistant director of the New York City Department of Health and chief of its division of diagnosis. In 1915 he entered the State Public Health Service as director of public health education and secretary of the State Department of Health, and from 1917 to 1923 he served as deputy State Commissioner of Health. Dr. Nicoll was connected with the Willard Parker Hospital for thirteen years in his early professional career. Later, he again became associated with this hospital as consulting physician, where he worked with the late Dr. William H. Park, former Director of the Bureau of Laboratories of New York City Department of Health. Together, in 1914, they gave the first demonstration of the value of intraspinal use of tetanus antitoxin in the treatment of lockjaw. He was at one time clinical professor in infectious diseases at University and Bellevue Hospital Medical School and was associated with the old Chamber Street Hospital, the Seton Hospital and the New York Foundling Hospital.

Dr. Nicoll was the author of numerous articles on pediatrics, infectious diseases, laboratory research and public health administration. He was a former president of the State and Provincial Health Authorities of North America, a Fellow of the American Public Health Association, a Fellow of the American Medical Association and its Chairman of the Section on Preventive and Industrial Medicine and Public Health 1925-1926, and a member of the State and County Medical Societies.

1941 GRADUATE FORTNIGHT

OCTOBER 13 TO 24

"CARDIOVASCULAR DISEASES INCLUDING HYPERTENSION"

•

The Program Includes

MORNING PANEL DISCUSSIONS, AFTERNOON CLINICS, EVENING LECTURES, SCIENTIFIC EXHIBITS AND DEMONSTRATIONS

•

EVENING LECTURES

The subjects and speakers at the evening lectures are:

Basic hemodynamic principles essential to interpretation of cardiovascular disorders.....Carl Wiggers
Heart failure.....Paul D. White
Coronary insufficiency: Observations on diagnosis and treatment.....Robert L. Levy
Pathology of arteriosclerosis, with special reference to coronary arteries..Timothy Leary
Arteriosclerosis: Social significance and recent advances in treatment..George M. Piersol
Advances in our knowledge of endocarditis with special reference to the therapy of subacute bacterial endocarditis.....Emanuel Libman
Neurocirculatory asthenia and related problems in military medicine..B. S. Oppenheimer
Syphilis of the cardiovascular system.....Edwin P. Maynard, Jr.
Arhythmias including paroxysmal tachycardia and their treatment.....Isaac Starr
The value and limitations of the electrocardiogram in medical practice....H. M. Marvin
Evaluation of drugs used in the treatment of cardiovascular diseases..Arthur C. DeGraff
Surgery of the heart and large vessels.....Edward D. Churchill
Surgical treatment of peripheral embolism and peripheral aneurism....Gerald H. Pratt
Thrombophlebitis.....Irving S. Wright
Heparin.....D. W. Gordon Murray
Raynaud's disease.....James C. White
Thromboangiitis obliterans.....Edgar V. Allen
Experimental studies related to shock.....Magnus I. Gregersen
Influence of extrinsic factors on the coronary flow and the clinical course of heart disease.....N. C. Gilbert
Treatment of heart disease in childhood.....T. Duckett Jones
Management of heart disease in pregnancy.....Harold E. B. Pardee
Mechanism and treatment of pulmonary edema.....Soma Weiss
Natural history of rheumatic cardiac disease.....Alfred E. Cohn
Mechanism of essential hypertension.....Harry Goldblatt
Effects of renal extracts on hypertension.....Tinsley R. Harrison

•

REGISTRATION FEE FOR NON-MEMBERS $5.00

A COMPLETE PROGRAM AND REGISTRATION BLANK WILL BE MAILED ON REQUEST